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Heavy-Duty Chain made by New Method

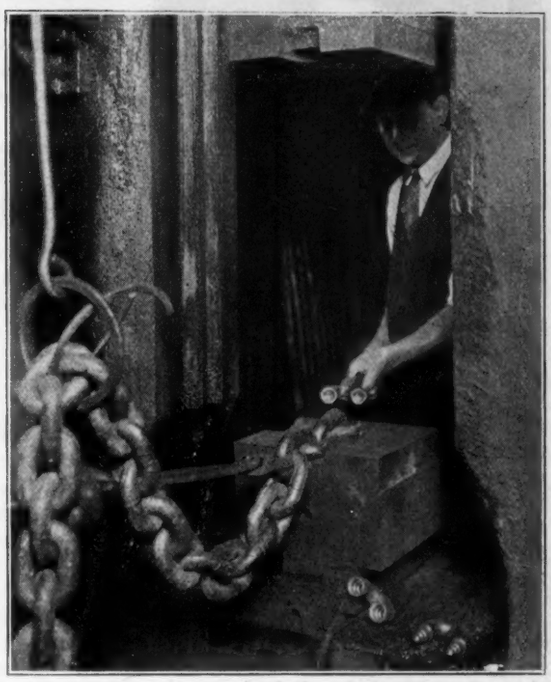
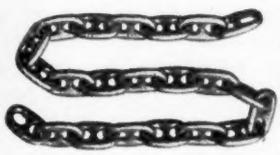


Fig. 1—Hot steel half links are forged over cold half links between dies



SMALL chain for light duty work is made in a variety of materials and design, but large, heavy-duty chain usually is of forged or cast steel links, the size and shape of which have become fairly well standardized. A drop forging company in Worcester, Mass., recently has started the production of a weldless heavy-duty chain, patterned after a design first worked out in connection with anchor chain for the United States navy. This new weldless chain develops on a testing machine a strength considerably greater than the usual type of forged welded chain.

Chains of one form or another have been known almost as far back as history dates. An early English writer, however, gives the date of the first patent for chain in England as 1634. This was a hand welded chain made of wrought iron. It was about 1808 that chain cable for anchors was first used in place of rope. This immediately proved its superiority and by the middle of the nineteenth century it had come into universal use.

About 1860 marine laws were enacted, making it compulsory for certain classes of vessels to carry chain cable which passed definite proof tests and this legislation gave a great impetus to the chain industry. The serious study of welding technique probably started as a result of these compulsory tests. Manufacturers found that chains habitually failed at the welds and thus better welding practice was developed. Through the Civil war and for many years thereafter, chains were made by hand, frequently by a blacksmith during his leisure hours.

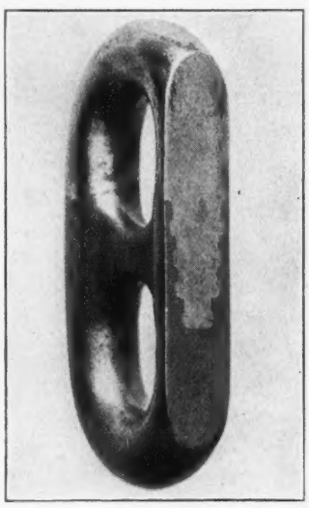


Fig. 2—This link was made of different colored metals and sawed to show joint sections

With the demand for increased sizes of chain and the consequent heavier demands on human energy in its manufacture, the process of forging and welding under power hammers came into use, but this practice did not become general until as late as 1910. Previous to the World war the bulk of all heavy-duty chain was made from wrought iron by the welding process. At the entrance of the United States into the war, the council of national defense recognized that the facilities available for making ship anchor chain were inadequate to meet the demands of the shipbuilding program and efforts to relieve these conditions were made. In 1917 the

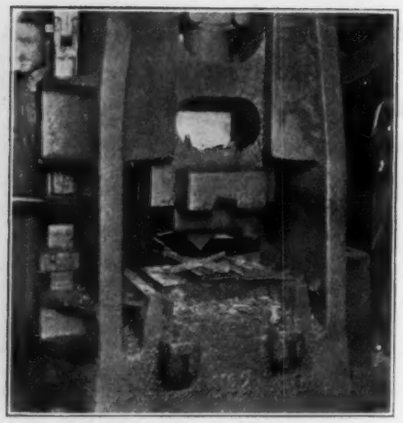


Fig. 3—Cross-shaped wrenches are made rapidly in three operations

method of casting links one into another to form an entire chain was developed. and in 1920 the first complete cast steel chain cables were issued to four ships. In making this type of chain, however, there has been some difficulty concerning hidden defects in the castings.

Several years ago, James Reed and A. Leahy. working with the metallurgist, O. G. Lutts, on the production of a detachable link for anchor chain for the navy, developed a design of link which is now being used in the commercial production of chain at the plant of the Rogers Drop Forging Co., Worcester, Mass. This chain is made up of forged, heat-treated, half-link sections which are joined in dies under the steam hammer.

One of the first advantages of this type of chain over the usual forged chain is the uniformity of link obtained in the dies. However, the chief distinguishing feature of the chain is its high strength. Tests have shown that it has a safe working strength above the breaking strength of wrought iron welded chain. A 1-inch stud link chain of this new design gives a proof test of 85,000 pounds and breaks at from 130,000 to 136,000 pounds. A wrought iron chain of this same size breaks at about 60,000 pounds and has a proof test of 40,000 pounds.

The method of making a chain is illustrated in Fig. 1. The male section of the new link to be formed is inserted through the last completed link. The female section is then taken from a nearby oven where it has been heated to 1500 degrees, is inserted over the male section, and the two together are placed into the lower die block of a steam hammer. The upper die block is then brought down and by means of it the hot metal of the female section is caused to flow around the corrugations of the other section to form a close fitting compact unit. When the hot section cools it shrinks and brings the two sections into even closer contact.

Fig. 2 shows a link made of two different colored metals and sawed in two to show the cross section of the joint. When this joint is loaded to destruction, it does not pull out but breaks off about midway of the joint. The usual practice is to make both sections of 3½ per cent nickel steel (S. A. E. 2335). The male section is heated to 1500 degrees Fahr., then quenched in oil and drawn to 900 degrees. It is cold when the chain is made up. The design of the two sections is such that the female section will just slip over the male when expanded by the heating. The temperature of 1450 degrees to which the female section is brought is the proper temperature to normalize the steel. In practice this hot steel is brought in immediate contact with the cold male section and the die block parts under pressure and this has the effect of heat treatment.

An inspection of the chain made up by this process of locking between dies reveals that the clearance between different lengths is very small. This is a desirable feature, as it greatly reduces the tendency toward distortion under heavy load. Welded chain requires greater clearance in order to successfully make the weld.

While the plant at Worcester is just getting under way in the manufacture of this chain, production methods already have been introduced. The separate drop forgings, two for each complete chain link, are first made up in quantity from inspected special analysis steel. These forgings are then sand blasted and further inspected. The male section is then heat treated as described and is then ready for assembly in the complete chain. The female section is drilled to give the required stepped-section holes. Most drop forged welded chain, subjected to heavy duty, must be annealed occasionally to prevent its hardening and breaking, but this new type of heat treated chain does not require annealing. Its hardness test averages close to 250 brinell. The usual wrought iron chain shows a brinell hardness of less than 100.

The fact that no welding is required gives a wider range of material to be used. Any forgable metal may be made up into this type of chain. For marine work chains have been made up from steel having 0.14 per cent chromium and 0.09 per cent carbon. This metal will not corrode under sea water conditions and it is claimed that chain made from it is three times as strong as wrought iron chain. Monel metal has been

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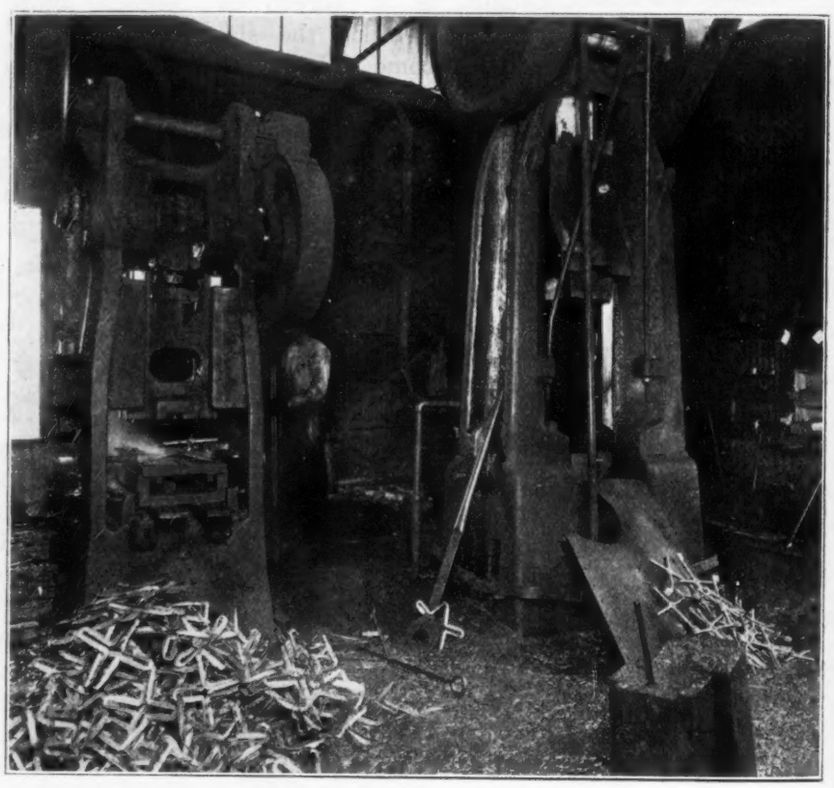
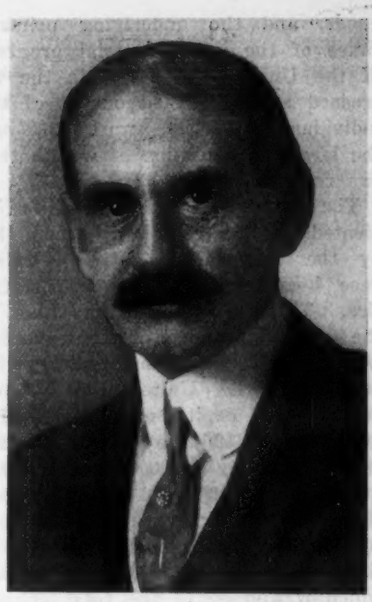


Fig. 4—This shows the second and third operations of the wrench making sequence

WHILE literature on the economic and social development of the American iron and steel industry is extensive, it contains no single article which compares in scope, conciseness and clarity with the accompanying analysis written by the vice president of the Illinois Steel Co. for presentation Sept. 21, 1927, at the Glasgow, Scotland, meeting of the Iron and Steel Institute of London. Mr. Robinson's comprehensive review of the advance of American iron and steel during the first quarter of the twentieth century is worthy of the attention of every individual engaged or interested in this great basic industry.—The Editors.



T. W. ROBINSON

Per Capita Output Is Key To Industry's Progress in Quarter Century

By T. W. Robinson

THE economic progress or retrogression of any nation depends upon the expansion or curtailment of the individual production of its workers, and the secret of America's well being lies in its unrivalled per capita output.

BACK of all accomplishment, however, is human effort, and the installation of power and the wealth of material resources will be but abortive aids unless utilized and directed by the hand of able and willing labor.

THE character of any people depends upon their education and environment, and their material welfare can only be assured if founded upon sound economic methods. The irrevocable law of supply and demand is nothing but human nature reduced to a formula, and composite human nature is unchangeable in its primary instincts in spite of civilization's veneer.

CONSUMPTION is vitally affected by costs of production, but for management to lower costs by reducing wages if they are reasonable is just as shortsighted as for labor to try to improve its condition by restricting its output. Both, if continued, must inevitably lead to lower standards of living.

HIGH wages and high dividends can only come from high production, and high production will be better assured if labor is not only paid to produce but also is paid by what they produce. Tonnage rates, piece work and bonuses for favorable performance spell high earnings when justly formulated, and American production owes much to this enlightened method of labor remuneration.

PROSPERITY to continue must be based upon a thriving public, contented labor, and adequately remunerated capital. If any one of this essential trinity becomes unbalanced the wheels of industry will slow down and prosperity disappear.

AS A prophet may not be without honor, save in his own country, I venture the prediction that as war has given way to peace, so will ignorance give way to economic enlightenment, and that in the new spirit of industrial co-operation there will be found both greater prosperity and a better understanding between the nations of the earth.

Pleased Public, Labor, Capital Spell Prosperity

DURING the last 25 years the income of the United States nearly doubled while its population, though largely increased, has grown in a lesser ratio. The significance of these changes lies not so much in the increase in the nation's production of wealth as a whole, as in the surplus purchasing power that has sprung from the increased output of the individual worker.

During the past few years the United States has been experiencing the unprecedented economic condition of continuously falling commodity prices, high wages and continued prosperity. Any intelligent attempt to explain this anomaly must recognize certain elementary economic principles.

It is clear that wealth cannot be divided until it is produced, and obviously the more there is produced by each workman the more there is to be divided. Wages and dividends are primarily matters of wealth's distribution—not of its production. High wages mean high consumption. The larger the output of the individual workman the greater is the tendency to lower costs and the greater the possibilities of return in wages and in dividends. Present easy money and low inventory are factors that influence but do not answer the question before us. High wages as a matter of distribution instead of production are an effect rather than a cause, and raw material, of which our forefathers had much more than we, is but of potential value until converted.

These are elements that enter into a complex problem, but do not explain it. Neither would increased production if accomplished merely by a proportional increase in the number of workers. The true answer to this economic paradox of combined high wages and lowering price of

goods, and the underlying primary cause of the late industrial progress of the United States lies in the increased and unrivalled output of the individual American workman, and the large accumulation of wealth that has resulted from it.

The extent of this wealth is indicated by figures recently compiled by the National Industrial Conference board from government statistics. These show that the value of the yearly product of the average workman in all manufacturing industry of the United States rose from a per capita production value of $3,214 in 1904 to $4,682 in 1925, as measured by the common purchasing power of the 1914 dollar. This represents an increase of 45.7 per cent in the manufacturing output of the average individual workman, which if applied to the total volume of manufactured products signifies that the increase of wealth in 1925 due solely to the increase in per capita production amounted to $12,304,000,000 more than it would have been had the output of the average worker been no greater than it was in 1904; in other words, one-third of all the wealth that was produced that year from the nation's manufacturing industry was direcly due to the increased productivity of the average individual workman.

The average output of the individual workman in the United States is today greater than ever before, and is much larger than that of any other nation. Canada comes next to the United States in individual productivity, and America finds its antithesis in the archaic industrialism of China.

An explanation of the increased efficiency attained by the manufacturing industry of the United States is found in the development of its iron and steel production. Of all basic industries the manufacture of iron and steel ranks first in fundamental importance and second in the amount of wages paid.

In 1901 the United States with its output, in round numbers, of 13,500,000 tons of ingots and castings, produced 44 per cent of the world's steel. By 1912 this had expanded to more than 51 per cent of the world's total with its production of over 48,000,000 tons of steel. Whereas 25 years ago the steel ingots made in the United States consisted of more than 66 per cent acid bessemer, nearly 84 per cent of the steel now produced is of basic open hearth. This, in brief, tells the nation's accomplishment for the first quarter of the century, and records the large replacement of the bessemer converter by the open hearth furnace, a change superinduced by the changing character of the country's ore reserve.

The causes for this impressive growth, while clearly complex, are largely predicated upon economic and social change rather than upon any pronounced technical difference in method of manufacture. In principle the blast furnace, open hearth, bessemer converter, and rolling mill are still the unchanged agents of reduction and conversion, and there has been but little progress made in the fundamental metallurgy of iron and steel during the twentieth century. Momentous advances in technique and the refinement in operation have resulted in an increase of output which can only be partially attributed to a multiplication of plants.

Output Per Man Greater Than Ever Before

(Tons Produced Per Man Hour at South Works, Illinois Steel Co.)

	1902	1926	Increase per cent
Ore unloading	2.087	16.835	706.7
Blast furnaces	0.185	0.698	277.3
Bessemer ingots	0.421	0.841	99.8
All open-hearth ingots	0.252	0.418	66.0
Rail mills—South Works, 1902; Gary Works, 1926	0.189	0.416	120.1

The production records of the past 25 years at the South Chicago works of the Illinois Steel Co. furnish a concrete illustration of the effect of such advances. These works represented in 1901 as they do now, the best modern practice. The average daily output of each of the South Chicago blast furnaces increased from 318 tons in 1901 to 679 tons in 1926. During this period the acid bessemer department increased its production from 70,000 tons to 100,000 tons per month, and the basic open-hearth furnaces increased from an average output per furnace of 586 tons per week to 1379 tons per week. The South Chicago rail mill had an average capacity of 60,000 tons per month in 1901, while the Gray rail mill, by which it has been replaced in the rolling of rails, has a capacity of 100,000 tons per month. These figures reasonably illustrate the unit advance in physical production which has taken place in the iron and steel industry in the United States.

A still more important development in American practice is the increased per capita output of the average iron and steel workman. This is strikingly illustrated by the South Chicago records in the accompanying table, which shows that the average man in a modern iron and steel plant is producing from one and a half to eight times as much as he did 25 years ago. If translated into yearly volume, these figures indicate that at South Chicago the average workman has increased his ore handling capacity since 1902 from 6000 to 48,000 tons; his pig iron output from 675 to 2405 tons; his bessemer ingot production from 1761 to 3730 tons; his open-hearth ingot production from 1049 to 1842 tons, and his rolling capacity from 603 to 1240 tons of rails.

Such a transformation is essentially due to the enlargement of units, refinement of design and the installation of labor conserving appliances rather than to fundamental changes in process. Behind these, however, is the large addition of mechanical energy by which these improvements have been made possible, and back of all lies enormous investment and cooperation of men and management.

The manufacturing productivity of any nation can be roughly measured by the amount of its mechanical energy, and the marked growth of power application in the United States has made possible its expansion and prosperity. From 1899 to 1925 the country's primary horsepower more than trebled, and as a result of this increase there is now four and one-quarter horsepower at the service of every manufacturing wage earner.

On the conventional assumption that one horsepower is equal to the unassisted physical effort of ten men, the average capacity of the individual worker in the United States is more than 40 times what it would be if unaided by mechanical energy.

The manufacture of iron and steel has more than kept step in power installation with the progress made in general industry. During the last 25 years its use of power has increased nearly fourfold, and to each of its workmen there is now given the energy of over 16 horsepower.

The extent to which power usage has been amplified and the electrification of plant increased, is strikingly exemplified by the Gary works

of the Illinois Steel Co. A short generation ago the reciprocating steam engine was the principal prime mover in both primary and secondary units. At Gary the production and utilization of power is dependent upon the blast furnace gas engine, steam turbine, electric generator and motor. Here 11,716 men were able in 1926 to turn out more than two and one-half million tons of finished product because back of each of them was the electrical energy of nearly 20 horsepower.

Wages and Living Costs

It is but natural to ask whether or not the increase in worker productivity in which power usage is such an important factor, has been followed by an increase in "real wages." Wages and earnings in the Chicago district may be considered as typical of those existing elsewhere in the iron and steel industry of the country. In 1901 the daily wage was based on 15c per hour and the average yearly earnings of all employes of the South Chicago works for that year was $825. By 1926 the hourly rate had risen to 44c and the average yearly earnings to $1870, an increase of 127 per cent, or more than double the amount of earnings received before. With this increase in earnings went also a reduction of nearly 18 per cent in the hours the men were required to work. Prior to 1922 the iron and steel industry had been operated almost universally on the basis of 12 hours for continuous operations and 10 hours for non-continuous operations. In that year the present 8 and 10-hour day working schedule was adopted, and several years earlier the seven-day week had been replaced by the six-day week.

In the first decade of the century there was no striking change in the basic cost of living or in the wage scales. By 1914, however, there had become pronounced that vicious circle of high commodity prices, high cost of living and high wages which a few years before had begun to evidence itself. War conditions aggravated the situation and commodities, living costs and wages rapidly pursued one another upward in an ever expanding sequence until the deflation of 1921. The social and economic consequences to the wage earner and to industry are told by the following result of governmental investigation. Earnings in 23 representative industries increased 115 per cent between 1914 and 1925. Living costs of workers' families rose 68 per cent and the hours of labor decreased more than 6 per cent according to statistics.

These figures indicate that wages in manufacturing industry have more than kept pace with the increase in commodity prices. The surplus earning power thus represented well explains the present wide consumption of luxuries and the high standard of living that now exists.

Granting that the economic change during the last 25 years has been distinctly beneficial to the wage earner, what has been the contemporaneous effect upon the consuming public and investor?

If we take the price relation that existed between the composite steel price and the wholesale price of commodities in 1913 as a base, we find that whereas in 1901 the price of steel was relatively 52 per cent higher than that of commodities, it was in 1926 three per cent lower. The composite price of steel is now practically 27 per cent higher than in 1901 while the wholesale price of commodites has increased 99 per cent.

Due to efficient management, the spending of many millions in power and machinery, and the co-operation of labor, the consumer, relatively speaking, is buying steel now cheaper than he did 25 years ago.

With the investor of today it is somewhat of a different story, and this is especially true if there be borne in mind the difference in the amount of money represented by capitalization upon which dividends are paid, and the much larger sum that is represented by the balance sheet, and upon which earnings are dependable.

While there are from the government no exact figures of the amount of money that is now invested in the iron and steel industry, the published balance sheets of steel companies representing over 85 per cent of the country's ingot capacity show a capitalization of approximately four and one-half billion dollars. According to these reports earnings for the years 1925 and 1926 are respectively 5.61 per cent and 6.70 per cent on the capital invested. It thus appears that while the wage earner, the consumer and the public in general have been very distinctly benefited, capital has not fared so well.

Increase in Steel Capacity

Due to the exigencies and stimulation of the war, the ingot capacity of the United States increased slightly over 15 million tons for the six years of 1915 to 1920 inclusive, or at the rate of approximately two and a half million tons per year.

The end of the war left the country with excess plant development, and for six years subsequent to 1920 the total ingot capacity increased less than three and a half million tons, or at the approximate rate of a half million tons per year. The theoretical steel ingot capacity of the nation is today, in round numbers, 58 million tons. While during the war no expense was spared to enlarge the country's steel capacity, investment during the last six years has been made with special reference to the reduction of costs, diversification of product, and the betterment of quality instead of increased production.

This explains why the installation of power and labor-saving machinery has been of late so strongly emphasized and why there has been such heavy scrapping of inefficient and obsolete machinery and plant. Irrespective of its physical condition or its length of service it is not good business to continue to use machinery if a better design will pay a fair return on its investment by reducing costs. The American practice is drastic in this regard, and it is only by such a progressive policy that any concern or any nation can hope to keep abreast of the times and successfully maintain its position.

The nation's savings deposits of over twenty-four and a half billion dollars with its forty-six and three quarters million of depositors is an index of the extent to which capital has been distributed, and the long list of small stockholders in industrial corporations illustrate the rapidly growing character of its in-

How Production Has Increased in 25 Years

Figures from South Chicago works of Illinois Steel Co.

	1901	1926
Blast furnaces (daily average each, tons)	318	679
Acid bessemer, tons monthly	70,000	100,000
Basic open-hearth, average tons per furnace weekly	586	1,379
Rail mill, tons per month*	60,000	100,000

*South Chicago mill is basis for 1901 figures, while 1926 capacity is that of Gray mill which replaced it.

vestment. The aggregate wealth of the United States no longer lies in the excessively rich, but in the small property owner whose name is legion, and more and more does management represent and stand between him and concentrated ownership.

Management Has New Vision

Just as the exigencies of expanding business 50 years ago resulted in the small corporation taking the place of individual ownership and control, so their resulting economies brought into existence the larger corporations of today. In the last two decades of the nineteenth century there was not always a proper appreciation of the difference in power and responsibility between large and small aggregations of capital. Management was then apt to measure responsibility and success by the profits it made rather than by the methods it employed. The rights of the public, the competitor and employe were ofttimes neglected; monopoly was not always discountenanced; labor was sometimes exploited; prices were apt to fluctuate from exorbitant heights in good times to ruinously low figures in bad times; competition was frequently destructive and business ethics too often failed to square with the golden rule.

Today modern management stands not as the representative of capital alone, but as an entity representing the interests of the public, the stockholder and the employe. For the development of this sense of plural trusteeship and the creation of the new spirit of co-operation that now animates all well-managed American concerns, the management of the United States Steel Corp. is in no small measure responsible.

In management as in other departments of American industry the job seeks the man, and character and ability are the determining factors. Perhaps nowhere is the success of this dominant policy more strikingly illustrated than in the leaders of America's two largest corporations in the steel industry. The character and accomplishment of the late Elbert H. Gary and James A. Farrell of the United States Steel Corp. and Charles M. Schwab and Eugene G. Grace of the Bethlehem Steel Co., need no elaboration here. Their prestige and resource is distinctly an heritage of ability and hard work, and their history symbolizes to a marked degree American opportunity and American accomplishment.

Because of the large increase in the number of small investors the line of demarcation between so-called labor and capital is rapidly lessening. There is a better appreciation today that the nation's capital is principally the savings of labor's thrift and is largely owned by labor itself. With the dissemination of this truth has also gone a better realization that in American industry the labor of the office and counting room is in the same economic category as the labor of the mill or field, and that the officials of management are just as truly employes of the corporation which hires them as the men working under their direction.

At the beginning of the century the United States with a population of 76,000,000 people produced nine and one-half million tons of finished steel, while in 1926 with a population of 117,000,000 this output had risen to 35½ million tons. In other words each inhabitant as an average used 739 pounds of finished steel in 1926 as compared with 279 pounds in 1900, or over two and one-half times more now than formerly. This expansion is essentially due to increased domestic demand and has been but little influenced by the small percentage of growth in the country's foreign trade. The following statistics show how small this change has been. The iron and steel imports and exports of the United States, in round numbers, were respectively 200,000 tons and 1,000,000 tons in 1900 as compared with imports of 1,000,000 tons and exports of 2,000,000 tons in 1926.

Increased Use Widens Markets

The increasing ramifications of steel's new uses are continually making for widening markets. With greater diversification of product has come an insistent demand for quality so that today trade requirements are infinitely more severe than in former years. The comparatively rapid growth of alloy steels and the increasing call for electrical refining, is a result of this demand, and such special steels are an important and ever-growing factor in the economic progress of the country. The change in the character of the demand is illustrated by the item of rails. At the beginning of the century the production of rails absorbed 25 per cent of the country's entire steel output. Last year although the rail tonnage was half again as large as it was 25 years ago, it represented only nine per cent of the country's steel production.

In the new demand for steel the most important development is the expansion of the automotive industry, which last year took 15 per cent of the nation's output.

Between the manufacturers of steel in the United States there is free exchange of ideas and information in respect to equipment and practice, and former secrecy has given way to a courteous welcome to both foreign and domestic competitors. In the matter of sales, however, while information concerning prices may be legally exchanged, anything in way of price agreement or restraint of trade is outside the law. Although industrial combination carries with it the possibility of service to the community by saving in operation and saving in distribution, it may also carry with it the possibility of unreasonable prices. That the public in the United States feared the possible monopolistic power of the industrial merger more than it appreciated its constructive force is evidenced by the Sherman anti-trust law and the subsequent anti-trust legislation that has been enacted. The difference between governmental encouragement of the cartel in Europe, and the discouragement of industrial combinations in the United States is, therefore, a difference in the public state of mind. That our laws against trade agreement and in favor of unrestricted competition are economically sound is subject to grave question. That uncontrolled license to combine would be in the long run more economically sound is likewise open to doubt. Possibly a happy medium could be found in permissive regulation. In any event, President Coolidge's dictum of more business in government and less government in business rings true in the light of general experience.

Automatic Cleaning of Metal Parts

Recent years have seen increased attention paid to methods of cleaning metal parts in manufacturing plants. The Bridgeport Brass Co., Bridgeport, Conn., has recently installed two automatic cleaning and pickling machines on which the various steps in the process are automatically controlled. The machines not only eliminate several men but also provide greater production than was possible with the equipment they replace. Carriers on an endless chain convey the work through the various baths to an unloading station. The machine was built by the U. S. Galvanizing & Plating Equipment Co., Brooklyn, N. Y., and the electric controller was designed by the General Electric Co.

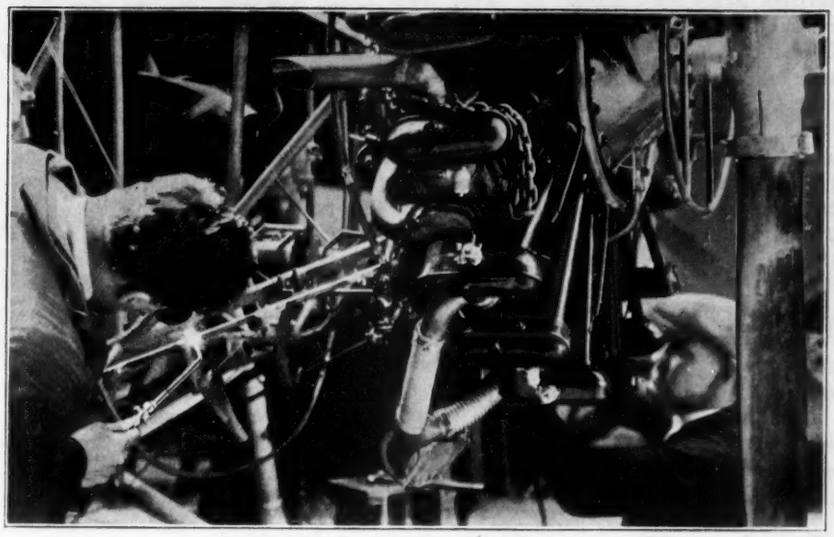


Fig. 1—In airplane construction, a wide variety of joint assemblies can be made. As many as nine individual members can be joined with practically no more weight than that of the tubing itself

This joint is known as the fish-mouth type. One tube is mitered and the other slipped inside for lap welding. This type of weld is longer and is claimed to give greater strength under compression

Fabricating Frames for Airplanes by Oxyacetylene Welding

ONE of the outstanding problems in aircraft construction has always been the matter of obtaining strength with lightness. The first aircraft were made with wooden frames and members were joined by binding with rawhide thongs, this in order to avoid weakening the wooden member with holes and to utilize a lighter binding medium than metal bolts or screws. Later on wooden members with sheet metal fittings came into use in American planes and when it was determined that it would be more efficient to use metal for certain members in the fuselage, various attempts at fabricating the joints were made with brass, bronze or aluminum castings and various other ways. The members so joined were aluminum rods, brass tubing, and later various alloys such as duralumin.

For one reason or another in the majority of aircraft construction today alloy steel has superseded most of these various materials of construction for the fuselage frames. Some American aircraft are made with duralumin members and some entirely of this metal, but most of the production work is on planes fabricated from thin-walled chrome-molybdenum tubing.

In its search for an efficient fabrication method the American aircraft industry determined upon oxyacetylene welding after much experimentation. The first work of this kind is credited to Fokker in Germany. Extensive research work which was done in the laboratories of the United States government and of private concerns have proved conclusively that in this way a strong vibration-resisting joint can be made with a minimum of weight and with economy in labor and materials.

Americans were quick to see the virtue of the properly welded joint, but save for a small amount of this work done in France none at all is now done in Europe. Welding is frowned upon in England, and even the Germans have failed to follow Fokker's lead in this regard, although performance of the all-welded Fokkers in the war was splendid.

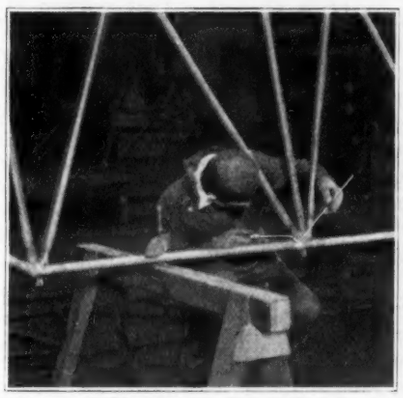


Fig. 2—In the butt weld, the edges are brought together in the same plane and the joint made with a small quantity of welding rod.

The accompanying illustrations show a variety of joint assemblies. It has been found that the most complicated of these, even those joints which include as many as nine individual members, can readily be made by oxyacetylene welding with practically no more weight than that of the tubing itself. The designers in laying out these joints simply plan to bring the tubing together, mitering the ends to fit with the other members of the joint. The weld is what is known at a butt weld, that is, the edges are simply brought together in the same plane or in planes at an angle, the welded joint being made with the addition of a small quantity of welding rod.

For certain joints, such as the one showing in Fig. 1, some manufacturers use what they term a fish-mouth joint. This they claim gives added rigidity to the member, gives a longer weld and therefore greater strength under compression. To make this joint one tube is mitered, as shown, and the other slipped inside of this for welding, a so-called "lap-weld" being employed.

Most of the tubing used is a chrome-molybdenum alloy which is generally of the following approximate composition:

	Per cent
Carbon	0.25-0.35
Manganese	0.40-0.60
Chromium	0.80-1.10
Molybdenum	0.15-0.25

This type of alloy, according to J. B. Johnson, chief of the materials

This article is from material prepared by the Linde Air Products Co., New York.

section, engineering division army air service, has a minimum tensile strength of approximately 95,000 pounds per square inch and a yield point of 60,000 pounds per square inch. The wall thickness runs from 0.022-inch to 0.36-inch, the weight of metal usually being determined by the requirements for handling. Mr. Johnson reported in a paper read before the International Acetylene association that welds in this tubing made under his direction has developed 96,900 pounds per square inch of metal through the weld.

Some manufacturers use chrome-molybdenum tubing for the tension members and a mild steel tubing for members stressed in compression. Tubes of these two kinds can be welded together in composite joints with entire success and without any special provisions in welding technique.

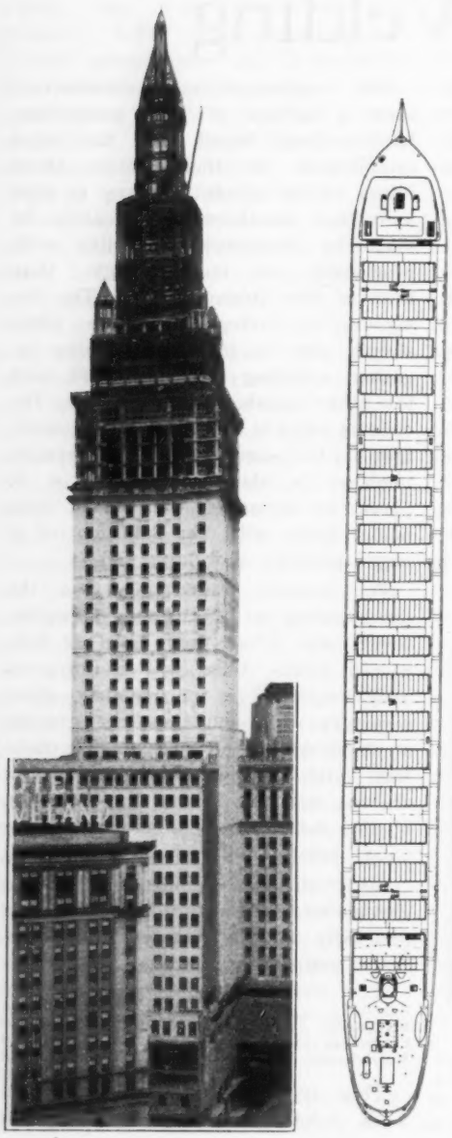
For welding both chrome-molybdenum and mild steel tubing a mild steel welding rod is almost universally used. It is found that such a rod gives ample strength for all purposes. In fact, some experiments have shown that welds of over 90,000 pounds per square inch can be made in chrome-molybdenum tubing with mild steel welding rod. There does not appear to be any special advantage in the use of chrome-molybdenum rod unless the finished joint is heat-treated, and it is difficult, if not impossible, to do this economically with an aircraft fuselage.

Some manufacturers have been using welding rods of special composition prepared especially to give high test welds and have reported some advantages from these rods, especially for complicated joints where the weld metal in the first welds made is likely to be reheated several times as subsequent welding on the same joint is carried out. Other manufacturers claim that so-called high test rod flows more freely and it is therefore easier to make a satisfactory and fully penetrating weld in very thin walled tubing than with rods of other types.

There seems to be no special technique for welding chrome-molybdenum beyond the usual practices required for light gage sheet metal. The operators usually use a sheet metal welding blowpipe fitted with a welding head of proper size for the thickness of the metal. Welding rods used are generally either $\frac{1}{16}$ or $\frac{3}{32}$. The blowpipe is kept carefully adjusted at a neutral flame and is carefully manipulated on the work to prevent "burning through" the thin wall of this special tubing. Some practice is required at times to obtain thorough penetration of the wall thickness without opening up a wide space by melting away tube walls. However, with a little practice an ordinary operator can readily do this work. It has been found that women very often make more satisfactory operators on light gage material of this kind than do men.

No special arrangements are made for heat-treating the joints after welding. They are simply allowed to cool in the air.

Newest Lake Freighter Compared with Skyscraper



TWO large structures of steel are attracting attention at Cleveland. One is the new union railroad terminal, the other is the newest and largest Great Lakes carrier, HARRY COULBY. The tower of the terminal building is 52 stories high, and the peak is 708 feet above the concourse. The length overall of the new steamer is 630.9 feet. If it were possible to stand the vessel on its stern beside the terminal tower their relative height would appear as in the accompanying illustration. This gives a good idea of the gigantic proportions of the carrier. The terminal tower is 78 feet square, while the molded breath of the steamer is 65 feet. That portion of the terminal on which work is going forward is taking over 18,000 tons of structural steel, while the total amount of steel in the vessel is about 5000 tons. The Harry Coulby recently unloaded 13,540 tons of iron ore at Conneaut, O., in 3 hours, 55 minutes, at the rate of 57.6 tons per minute. This was the second best unloading record on the Great Lakes, the steamer MCGONAGLE in June having unloaded 11,445 tons in two hours, 25 minutes, at the rate of 78.9 tons per minute.

Suggests Standards for Concrete Forms

Proposed standard dimensions for removable concrete forms was a subject discussed at the semiannual meeting of the Concrete Reinforcing Steel institute held at Detroit, Sept. 19-21. The conference finally decided to standardize on the width of forms, the length and total contraction of tapers, special filler widths and depths of forms.

These recommendations will be taken up with the division of simplified practice of the department of commerce in the near future with the idea of nationalizing these standard dimensions. It is believed, however, that considerable time has been saved in getting a unanimity of opinion of manufacturers and dealers on this subject.

New Books Worth Reading

Gas Analysis Standardized

Sampling and Analysis of Gases, by United States Steel Corp. chemists, paper, 187 pages 6 x 9 inches, 25 illustration. Published by Carnegie Steel Co., bureau of instruction, Pittsburgh, and supplied by IRON TRADE REVIEW for $2, postpaid, and in Europe by Penton Publishing Co., Ltd., Caxton house, London, for 10 shillings net.

Two years work by chief chemists of subsidiary companies of the United States Steel Corp. have gone into this book. One of the chief benefits to the Corporation from standaridzation of sampling and analysis of gases is that analytical results from all its plant are comparable. This makes possible the study of the value and efficiency of raw materials, plant equipment and plant operations. Similar good results may be attained by adoption of the equipment and methods by other companies.

The book has four divisions. The first covers 44 pages and is devoted to description of apparatus, reagents and absorbing solutions. A new device has been developed for use in making determinations, embodying some original applications to avoid errors frequently met in the use of earlier equipment. Discussion of these changes covers reasons for their adoption and results obtained by the change.

The second part occupies 60 pages and is devoted to methods of sampling and analysis of various gases. A special portable testing set for use in the field is described. Special determinations that cannot be made with the regular gas analysis set are described in the third part. Part four, 47 pages, deals with measurement of gases, calculation of gas volumes under various conditions and problems presented by combustion of gases. Twelve tables in an appendix supply data for making all calculations usually required in gas work.

Emphasis is laid on the value of accuracy. Much information on sampling, analysis, measurement and combustion of gases makes it of value to combustion and efficiency engineers and all interested in combustion and handling of fuels.

Iron and Steel Statistics Explored

The Iron and Steel Industry in Prosperity and Depression, by Homer Bews Vanderblue and William Leonard Crum; reviewed in IRON TRADE REVIEW, Sept. 8. The price was stated to be $2.50, which was a typographical error. The price is $7.50 and in Europe 37s 6d.

Industry in a Novel

Industrial Turmoil, by Fred B. Jacobs, 300 pages, cloth, 7 x 4½ inches, published by the Burton Publishing Co., Kansas City, Mo., and furnished by IRON TRADE REVIEW for $2 and in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London, for 10s.

Like those of Dickens, the characters in this story are either thoroughly good or thoroughly bad, though reformation of the latter is accomplished in one instance. It is a story of a New England industrial community, by a writer who spent his boyhood in such surroundings. The plot has compelling interest, centering about a metal-working plant dominated by a grasping Yankee who seeks by force to rule his workers and later by his daughter and her advisors, who have grasped the new ideal of labor management.

A pleasing love story, perhaps there may be two, forms a thread through its chapters and serves as a medium for bringing to the front the adventures which center about the main theme, the relation of the worker and the employer.

Knowledge of the sea gained while the author was a lad in New England and knowledge of the shop, the labor union, bad and good management and late development in shop practice have been drawn on to paint a true picture of industry from the standpoint of employer and employe relations.

Reading of the story yields more of pleasure and information than the title suggests. The more serious intent of giving the reader a view of the modern trend in labor management is sugar coated by the fiction in which it is encased. The seeker for simple entertainment and thrills will enjoy the book and it is a contribution to the literature of management.

World Trade of United States

Foreign Trade in 1927, by the National Foreign Trade Council; cloth, 575 pages, fully indexed; supplied by IRON TRADE REVIEW at $2.50 postpaid and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 12s 6d, net.

This is the annual publication by the National Foreign Trade Council, and contains the proceedings of the Detroit national foreign trade convention. At the gathering 87 per cent of the attendance was composed of executives of companies engaged in export business. The largest group of delegates was composed of 302 manufacturers; transportation interests furnished 181 delegates, the automotive industry 156, iron, steel and machinery industries 141.

Discussion between Canadian delegates and those from the United States is of much interest, bearing on branch plants in Canada, tariff rates, the pulp and paper industry and water power development.

Among the 48 addresses at the convention many are of permanent value to the American business public.

Probing Canada's Foundation

Limestone of Quebec and Ontario, by M. F. Goudge, a publication of the mines branch of the department of mines of Canada; 75 pages, 6½ x 9¾ inches, paper; published by F. A. Acland, Ottawa, Canada, and supplied by IRON TRADE REVIEW, Cleveland for 25 cents, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for one shilling.

To take stock of the supplies of limestone in these two provinces a survey was started two years ago, and this preliminary report gives the results so far attained. The effort has been to map the limestone resources of the provinces, including dolomite, to observe the technology of quarrying and lime burning and the uses of lime and limestone in various manufacturing industries. A more complete report will follow when laboratory reports are available to round out the field work which is the basis of the present publication.

The limestones are treated in their geological relations, to conserve

space. An index of counties affords reference to the description of deposits in any portion of the country. Numerous maps indicate occurrence of limestones of various sorts and halftones show ledges, quarries and other excavations which bare strata to the eye.

Maps Domain of Research

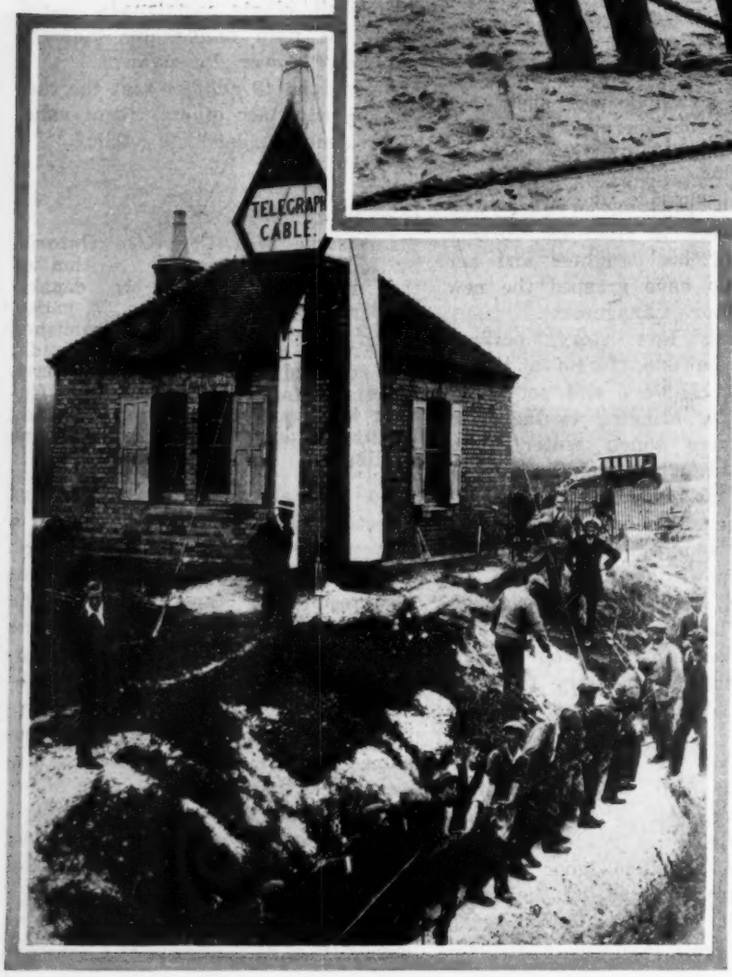
Industrial Research Laboratories of the United States, third edition; paper; 153 pages 6¾ x 9¾ inches; published by National Research Council of the National Academy of Sciences, Washington, and supplied by IRON TRADE REVIEW, Cleveland, for $1, postpaid, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 5 shillings.

Demand for information regarding industrial research brought about the revision of the previous list of industrial research laboratories. The bulletin lists 999 laboratories and includes consulting research laboratories also.

The main body of the book is an alphabetical list, containing names of the staff, the nature of research and whether full or part time. This is supplemented by an address list of directors of research, an index by states and cities, with reference to numbers in the main list, and an index classified according to subjects, again with reference to numbers in the main list.

Ocean Cable Protected With Pure Iron

Landing of the New Anglo-Belgian Cable at Dumpton Gap, England. The Cable Is Wrapped With Iron Wire to Prevent Corrosion



A NEW link between England and Belgium, an iron hand-clasp across the English channel, has recently been completed. It is the British postoffice cable, an international bond that will mean better and quicker communication.

Every new cable that is laid contains improvements designed to make it better than its predecessors. Experience has shown how difficult and expensive it is to lay a cable. If corrosion damages it, more expense is incurred in raising and repairing it.

The worst corrosion usually takes place on the shore ends because of decomposed vegetable matter and refuse. Experience has shown that cables sheathed with ordinary steel wire have failed near the shore ends after only a few years' service. So it was decided to use rust-resisting pure iron to sheath this latest cable. The wire for the sheathing was manufactured by Whitecross Co. Ltd. of Warrington, Eng., and was made of ingot iron under licensee arrangements with the Armco International Corp. The cable was laid by Messrs. Siemen's cable ship FARADAY.

Unloads Sheets Mechanically

Midget Lift Trucks, Dollies and Crane Facilitate Handling of Sheet Steel—Distribution of Load in Car Prevents Shifting of Material in Transit and Eliminates Surface Damage—Description of System Employed

LOADING and unloading sheet steel are tasks which, up to a comparatively short time ago, were given over to main strength and endurance. Packing sheets for shipments was a matter of concentrating it and bracing it with a framework of heavy lumber, held in place by stout spikes driven into the sides and floor of the car.

Into this phase of railway freight transport the Ford Motor Co. has brought mechanical assistance and a method by which the load is spread over the area of the car in such a way that its own weight helps retain it securely in place.

The old method of loading and unloading sheet steel consisted in carrying two or three sheets at a time, into or out of the car. The size, weight and flexibility of the material required two men to handle sheets. Further, the handling was arduous and hazardous work. Four men working four hours were required to unload a 50-ton car. Despite the best of care, the old method invariably caused a considerable amount of scratched and otherwise damaged material.

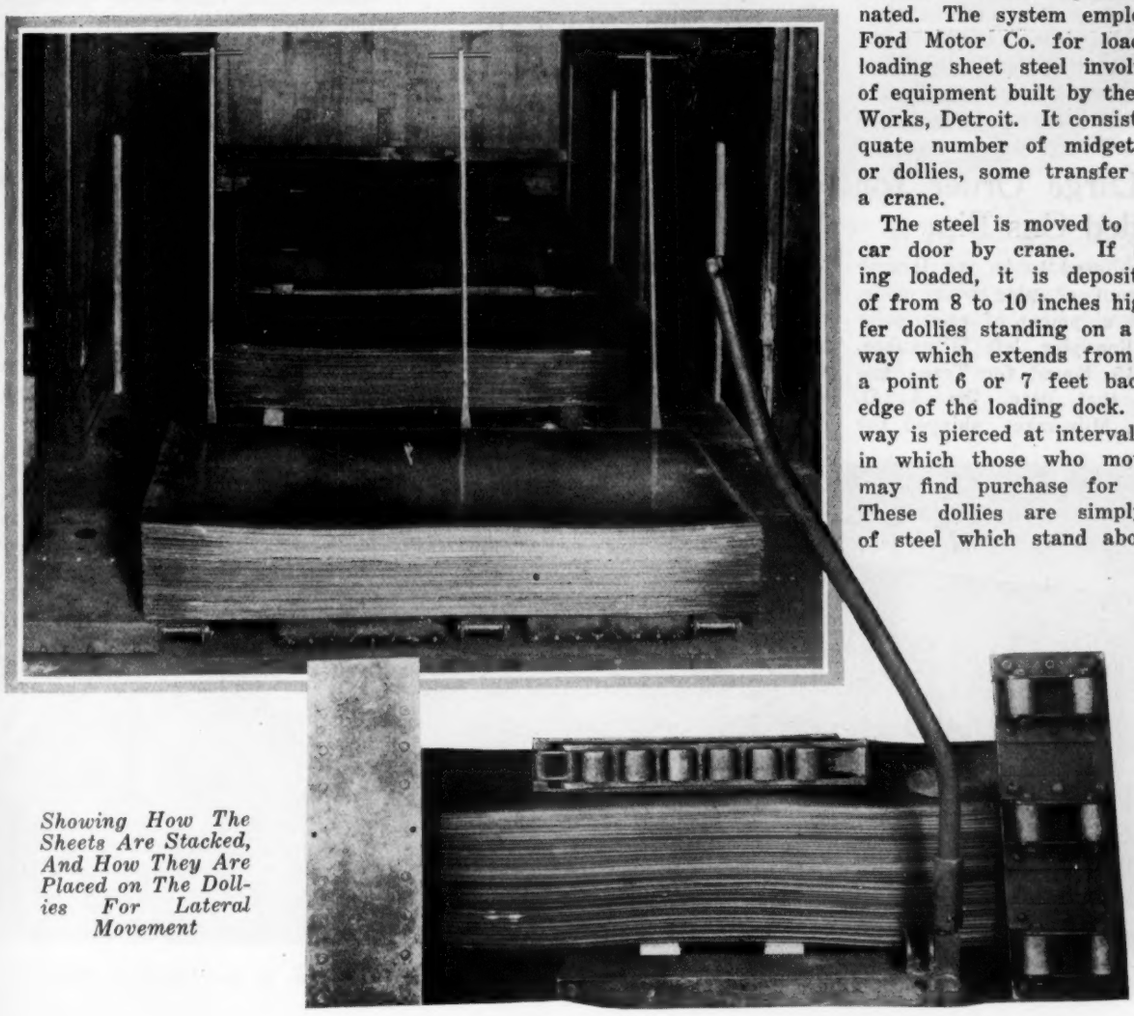
Under the present method the steel is handled entirely mechanically, and by power machinery to or from the car door. Three men are able to unload a 50-ton car in one hour—a saving of 13 man-hours or 81 per cent over the old method. Also the amount of material damaged in handling has decreased almost to nothing. Under the former method of arranging the steel in the car for shipping, both the car and the material were subjected to severe treatment.

Shifting of the load of steel made scratched and damaged material plentiful; use of heavy spikes caused abnormal wear-and-tear on the car; and a particularly hard impact, received through switching or placing, frequently resulted in the steel bursting its way through the end of the car. Those who have made a study of shipping sheet steel affirm that the damage to the car averaged $2.68 per ton of metal shipped, while the damage to the car averaged 41 cents for the same amount. In a 50-ton car, damage at these rates would amount to $155, or 1.55 mills per pound on the contents of the car.

Under the present method, both loading and unloading are facilitated, and the steel is so distributed and blocked that shifting of the load cannot take place. Damage to steel in transit has been practically eliminated. The system employed by the Ford Motor Co. for loading or unloading sheet steel involves the use of equipment built by the Roura Iron Works, Detroit. It consists of an adequate number of midget lift trucks or dollies, some transfer dollies, and a crane.

The steel is moved to or from the car door by crane. If steel is being loaded, it is deposited in piles of from 8 to 10 inches high on transfer dollies standing on a steel gangway which extends from the car to a point 6 or 7 feet back from the edge of the loading dock. The gangway is pierced at intervals with holes in which those who move the load may find purchase for their bars. These dollies are simply platforms of steel which stand about 8 inches

From an article recently presented in the *Ford News*.



Showing How The Sheets Are Stacked, And How They Are Placed on The Dollies For Lateral Movement

high and are mounted on roller bearings.

On the dollies the steel is moved into the car. Then it is transferred to lift dollies, which by means of a long handle may be elevated from 3 to 5 inches with a single motion. In the remainder of their structure the lift trucks resemble the transfer dollies. With a lift dollie, one man can easily raise from 3 to 5 tons. These are put beneath the loads, the handles are thrust down, and the steel is lifted from the transfer dollies and moved over a trackway of steel strips to its position in the car.

Under the former method of stowing steel for shipment, the metal was placed in piles, containing about 25,000 pounds each and running lengthwise of the car, in the car ends, crowding the corners as closely as possible. Then a formidable framework of lumber and spikes was built against and around it. Often such high piles of steel broke loose in transit with disastrous consequences.

By the new method, the steel, divided into piles of less than a foot high, is placed crosswise on stringers of 4 x 4-inch lumber laid lengthwise of the car. The car is filled with these piles, except for a space of 5 feet opposite the doors. In this space a box-like structure holds the piles on each side apart. Spacers, 2 x 4 inches, are used between the piles.

Filling Large Order for Welded Gas Pipe

What is believed to be the largest single shipment of pipe ever made, and the first shipment of electrically welded gas line pipe, left Milwaukee, Wis. Sept. 15, bound for Texas gas fields. On that date, the A. O. Smith Corp., Milwaukee, shipped the first six trainloads of 225 cars of 22-inch gas line pipe for the Dixie Gulf Gas Co.'s line, now being constructed by the Hope Engineering & Supply Co., from the Shreveport area to Houston and Port Arthur, Tex. The shipment involves 5625 tons of steel, 158,250 feet of pipe, just 150 feet less than 30 miles. It marks the introduction of Smith welded gas line pipe into actual use in natural gas lines.

The pipe is joined on the longitudinal seam by electric welding, and the user has considerable option in specifying the metal thickness of the pipe.

The process also makes possible production of the pipe in uniform lengths of 30 feet, reducing the number of joints per mile. The Smith corporation's mill is producing the new pipe at a rate of 4½ miles per day.

Eighteen hundred carloads will constitute the complete shipment for the Dixie line, requiring approximately 50,000 tons of steel. The total length of the line is to be 278 miles, the longest line of such size ever built for natural gas.

Heavy Duty Chain Made by New Method

(*Concluded from Page* 898)

used in making chain for pickling plants.

The manufacture of chain occupies one department of the Rogers Drop Forging Co. plant at Worcester. Other parts of the plant are devoted to a wide variety of forging operations. One interesting process is in connection with automobile wrench production. The familiar solid four way cross type wrench is forged rapidly in three operations on three consecutive hammers. Under the first hammer, which is shown in Fig. 3, a white-hot bar about 2 inches wide and ¾ inch thick is split lengthwise, except for two inches at its center. This is done on the dies at the right. It is then moved over to the dies at the left where the four split arms are twisted around to the form of a cross. This cross-shaped piece just formed is shown in the illustration. This piece, still hot, is handed rapidly to the next operator at the hammer at the left of Fig. 4. Here it is forged to approximate shape under dies and is later trimmed. The final operation trues up the piece under the hammer shown at the right in Fig. 4.

Recommends Hangars Be Built of Steel

Aircraft hangar framework should be of structural steel covered with sheet steel protected by an asbestos composition or a painted rust-resisting alloy, the aeronautics branch of the department of commerce recommends. The steel type of hangar, declared the department, may be easily increased or decreased in size or dismantled for removal to a new location when necessary.

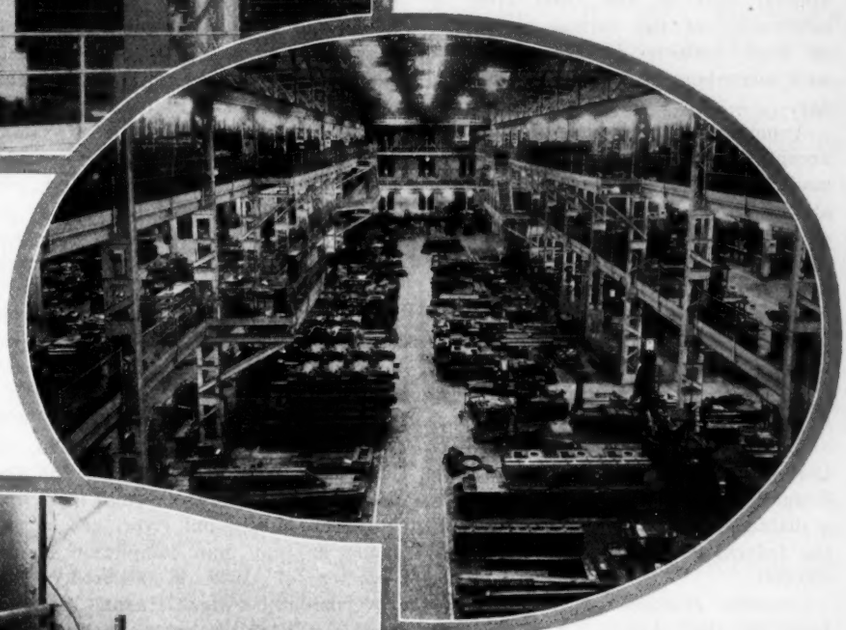
Concrete floors, while said not absolutely essential, have many advantages and should be included. Laid with a slight slope towards the doors, the removal of planes in an emergency is expedited and the flushing of floors in cleaning is likewise facilitated.

A branch of the Illuminating Engineering society is being formed at Boston. This will be known as the New England section, and the first meeting will be held early in November.

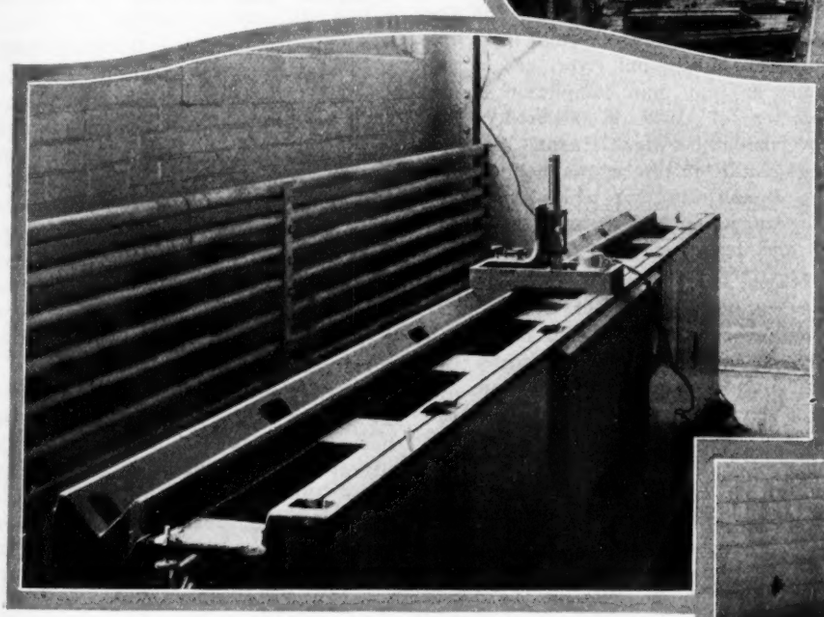
Thirty-three miles of 22-inch welded gas pipe shipped in one day from Milwaukee to southwestern field

Grinding Machine Plant Has Unique Features

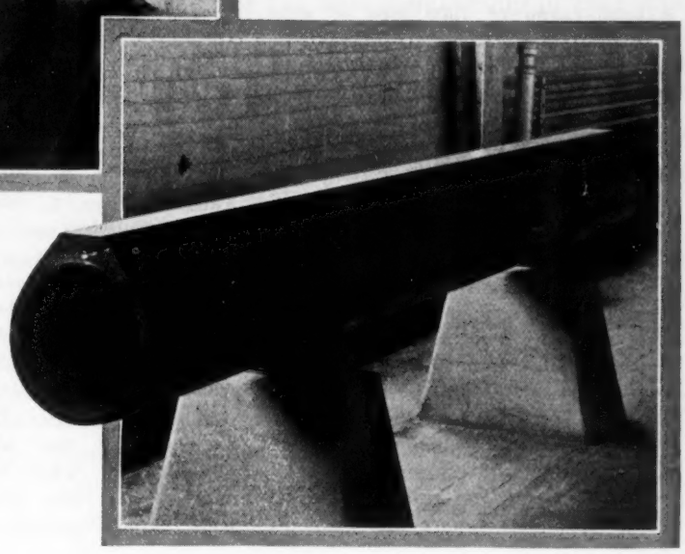
IN THIS new plant of Cincinnati Grinders Inc., Cincinnati, O., the department or unit system of manufacturing is followed, whereby a given product or type of product is manufactured in one particular location of the shop, this location being determined by many factors such as sequence of operations, size of piece and proximity to assembly.



The above illustration shows arrangement of bins for storage of small parts. These bins contain over 4500 square feet of storage space. They are located on the southwest side of the second balcony, near the elevator, the rest of that side of the balcony being devoted to storage of larger parts, various assembled units, etc.



At the left is shown the straight line testing apparatus. The medium used is an aluminum wire 0.010-inch diameter. The instrument in reality is an optical micrometer with a finely graduated scale in the optical field.



At the right is a tubular type master straight edge for testing bridge plates to which guiding surfaces of the grinding machine are scraped. The tubular design has been found to offer the most resistance to distortion due to temperature changes. The weight of the straight edge is distributed on a three-point bearing, the end equalizing beam being used to insure that no strains are set up due to this method of mounting.

Commerce Reclaims Ohio River

Waterway To Be Opened To Heavy Traffic Over 1000-Mile Course Within Two Years —President Coolidge To Attend Celebration in Fall of 1928—Progress Summed Up at Meeting of Valley Improvement Association

By Joseph F. Froggett

PRESIDENT COOLIDGE in the autumn of 1928 will be the guest of the Ohio Valley Improvement association on a steamer sailing from Pittsburgh on a triumphal tour of the Ohio river in celebration of the formal re-opening of that historic waterway to the vast commerce of the new industrial day.

Announcement of the President's acceptance of the invitation was made by President Oscar F. Barrett at the thirty-third annual convention of the Ohio association held at Huntington, W. Va., on Oct. 4 and 5. Something like 200 delegates from cities and towns along the Ohio and its tributaries in six states heard the stirring and inspiring reports of the work of the United States engineers in charge of the details of the work of building the 50 locks and dams that will open to commerce the Ohio from Pittsburgh, Pa., to Cairo, Ill., a distance of 951.2 miles at a cost to the federal government of over $100,000,000.

Concrete evidence of the effectiveness of the system of locks and dams within a measurable distance of the mouth of the Ohio river was afforded the delegates on Tuesday afternoon. Tied up for the few hours of inspection at the Huntington wharf by the delegates was the towboat WARREN ELSEY, of the Jones & Laughlin Steel Corp., accompanying nine steel barges. These carried a total cargo of 7000 tons of steel products, from concrete reinforcing bars to beams, which are being distributed to ports down the rivers, finally unloading at New Orleans. The inspection by the delegates completed, the big steel tow resumed its journey down the Ohio.

Complete in Two Years

That the entire Ohio river lock and dam project, now in course of construction for over a quarter of a century, will be finished within two years for navigation with a 9-foot stage of water from Pittsburgh to Cairo, was made clear by Col. C. W. Kutz, United States corps of engineers in charge of the Ohio river work. Complete report was made by Colonel Kutz on the completion of the few remaining dams and locks. Lock and dam No. 45 at Addison, Ky., was placed in commission Sept. 6, this year. Work on the new power-navigation dam at Louisville is nearing completion one year ahead of the date named in the contract. This dam is 8 feet higher than the existing dam and will back the water up a distance of 25 miles to dam No. 39. Dams Nos. 46 at Owensboro, Ky., 47 at Newburg, Ind., 49 near Uniontown, Ky., and 50 at Ford's Ferry, Ky., are so nearly completed as to justify reporting them as completed. That will leave only four locks and dams still under construction after this season. Good progress is being made on all of them. No. 50 at Ford's Ferry, Ky., and No. 52 at Brookport, Ill., will be completed in 1928; while No. 51 at Golconda, Ill., and No. 53 at the foot of Grand Chain, the last link with the Mississippi river, are so far along as that final completion in the summer of 1929 is assured. The government dredge HARRIS now is engaged in cutting a channel through the Mound City bar which will form the connecting link between dam No. 53 and deep water in the Mississippi.

Major A. D. Ardery, in charge of the engineering district at Huntington, gave some interesting figures on Ohio river lock operating costs. In 1926, the tonnages handled on the Ohio river in that district cost the federal government 2/10 cent per ton mile, or 13 cents a ton for every ton carried on the Ohio. On the Great Kanawha river system it cost the government 29/100 cent per ton mile, or 13.7 cents a ton for every ton carried; on the Little Kanawha river, 2.7 cents a ton mile, or 12.7 cents a ton; and on the Big Sandy, 10.4 cents a ton mile, or 87½ cents a ton for every ton carried, this high cost being due to the shifting sandy bottom of that river which necessitated constant work upon it.

Maj. Gen. Edgar Jadwin, chief of engineers of the war department, recalled that when he took charge of the Ohio river work in 1916 and then visited Huntington to appear before the Ohio Valley Improvement association at its last previous meeting there, the association was giving much attention to the problem of inadequate clearances to navigation through the building of highway and railroad bridges across the Ohio. Now those menaces to navigation have been pretty well cleared up, but some yet may prove dangerous as navigation grows in the future. While a late start this season was afforded by the adverse weather, yet he felt sure the entire Ohio river project will be completed in 1929.

Large Savings Effected

Quoting statistics to show the growth of river traffic in recent years, due to the improvements, he pointed out that the volume of Mississippi valley traffic in 1889 was 28,000,000 tons, whereas in 1926 it had increased to 57,000,000 tons. Once it included beside coal, sand and gravel, also general freight; but now vast iron and steel tonnages, heavy petroleum shipments and other materials are being carried on the river at great saving in transportation costs. He declared there is nothing speculative about this saving, a few years' operation on the Monongahela river alone returning to shippers savings aggregating more than the millions invested by the government in locks and dams.

The serious problem still remaining after the completion of the river work, is to work out with lateral railroads, bus and truck lines along the banks of the river, reciprocity of interests in conveying as feeders to the river the freight that originates back 75 to 100 miles inland.

Election of officers of the Ohio Valley Improvement association resulted as follows:

President, Capt. Oscar F. Barrett; secretary, W. C. Culkins; treasurer George Puchta; executive committee, Edwin C. Gibbs, chairman, W. C. Culkins, George F. Dieterle, Maurice J. Freiberg, R. P. Gillham, A. K. Nippert, Julian A. Pollak, George Puchta, and James A. Reilly, all of Cincinnati, and James T. Hatfield, Coving-

(*Concluded on Page* 946)

Editorials

Man's Power Is Multiplied

See Value of Standards

Are Unions Growing Stronger

London Rules in Metals

Analyzes Development of Industry

IN PRESENTING an address on the social and economic development of the American iron and steel industry before members of the British Iron and Steel institute at the recent Glasgow meeting, T. W. Robinson, vice president, Illinois Steel Co., made a notable contribution to the literature of industrial progress. The address, which is published elsewhere in this issue, is comprehensive, clear and concise. Undoubtedly it is the best analysis of the activity of the steel industry in the past quarter century that has appeared within the limits of a single article.

Mr. Robinson has succeeded in showing definitely just what has transpired since 1901 in individual output. Using figures from the records of his own company, supported by general statistics, he reveals the surprising increase in production per man hour. This is due not only to the greater efficiency of the individual, but also to the fact each workman has been assisted by improved mechanical equipment which has been made available through the unstinted expenditure of capital. He also stresses the importance of the trinity—a thriving public, contented labor and adequately remunerated capital—as the basis of prosperity. He also traces the development of the safety movement, of the new conception of management, and of the relations between employer and employe. And finally, unlike many others who ignore the subject, Mr. Robinson properly discusses the importance of consumption and distribution, and shows that present competitive conditions make it necessary to give increasing attention to these phases of industrial activity.

In conclusion, he predicts that ignorance will give way to economic enlightenment, and that "in the new spirit of industrial co-operation there will be found greater prosperity." These are encouraging words, especially to those who have been under the impression that the steel industry is lagging behind other industries in vision and enterprise. If Mr. Robinson's address helps to focus attention on the great need of this "new spirit of industrial co-operation," it will have contributed in an important way to the foundation for continued progress in the second quarter of the century.

Are Union Jobs More Stable?

IS the strength of trade unions in the United States gaining or decreasing? Numerically, as shown by the chart published elsewhere in this issue of IRON TRADE REVIEW, it is 13.6 per cent below the peak of membership, attained in 1920, Compared with 1923, however, the membership shows an increase of 16.7 per cent, It was in March, 1923 that the number of all workers on the payrolls of industrial establishments reached the highest point.

Some other factors must be taken into consideration when gaging the strength of organized labor, and they are not always clear and comparable. Government figures show that the number of all workers in industrial establishments decreased from the high point in March, 1923 to the average in the first half of 1927 by 10.6 per cent. The same basis of comparison is not available for trade union labor, but the total membership in 1923 was 3,780,000, and in 1926 it was 4,413,523, an increase, as noted, of 16.7 per cent. Membership as reported in 1927 is not as large as in 1926, but there still exists a substantial increase over 1923.

Government figures also show that production in industrial establishments gained 7.3 per cent, notwithstanding the decline of 10.6 per cent in total employment, from the first half of 1923 to the first half of 1927, It would be absurd, however, to note the increase in total trade union membership, in connection with the gain in production, because a large proportion of union membership is represented in transportation, building trades and other departments not measured in the factors of industrial production.

As union membership is affected by employment

the figures raise an interesting question as to the relative stability of labor; many unions evidently are able to hold out longer against adverse circumstances, as witness their grip on the building trades.

Standardization Gaining Strength

STANDARDIZATION, that trend which is marking the development of American industry, was stimulated considerably in the sessions of the first Machine Tool congress held in Cleveland recently. Realizing that multiplicity of sizes, styles, fixtures, etc., is a costly luxury indulged in by manufacturers to create and maintain a prideful identity, the machine tool builders attending the congress opened wide the subject of standardization.

Benefits of almost incalculable value obtained by the automotive industry through interchangeability of parts, making possible the assembly line method of production and its resultant economies, were held up to the machine tool industry as demonstrating the possibilities of profits in standardization. The basic secret of our national railroad transportation system is standardization. Uniformity in track gage and a definite specification for car couplings make possible the interchange of rolling stock without which our railroads would be operated as a group of individual carriers and not as a homogeneous and comprehensive system.

That steps toward simplification and standardization in the machine tool and industrial machinery field will be taken more rapidly as the benefits to be obtained are more clearly recognized seemed the sentiment that permeated the sessions of the Machine Tool congress.

Stocks Hold Nonferrous Balance

NONFERROUS metal markets, much like the iron and steel markets, are disappointed in the absence of expected autumn business. In fact, buying has diminished recently. It does not follow that the whole autumn will be a disappointment, but there is much more uncertainty in most of the metal markets and considerable confusion among both buyers and sellers. The action of prices and the nature of news has been confusing. Copper and lead appeared to be getting off to a good start, and then came the news of rapidly falling prices in London. For a time producers here showed much resistance though they had to bear the added fact that buyers here had withdrawn on account of the London news.

Sometimes it is darkest just before dawn, and certain it is that falling prices encourage pessimism, though as a matter of truth the falling prices sometimes reflect only mob psychology and all the while fundamental conditions are moving toward a sudden wave of buying. This latter turn of affairs, if it comes, generally puts in its appearance after a brief period of decline. The question of the metal markets now is whether such a reaction is due or whether buyers are well enough covered to wait. In the latter case, there appears to be only weakness for prices.

Some of the unsettlement is due to the break in tin. This is the one metal that really has been at a high price. For several years output has lagged behind demand, and now the reverse is the situation. However, the sentimental effect of tin on other metals, plus the speculative relations of the metals in London, is a minor consideration to the fundamental business situation in this country.

What Our Readers Are Thinking

Yangtse as a Steel Center

THE growth of our business (shipping) is but part of the general advancement of the Pacific coast. Eighty years ago the western coast of the United States was a wilderness with only a scattered population of a few white men; less than 50 years ago the first steamship crossed the Pacific ocean from America to China. Tonnage has increased by leaps and bounds and I believe that within a few years the tonnage of the Pacific will exceed that of the Atlantic. . . .

But incidents and figures do not convey the full picture of the commercial possibilities. Leaving all the rest of China out of the picture, let me just suggest briefly the wonderful richness and resources of a portion of the country; the land bordering the Yangtse river and its tributaries, running through the rich heart of China.

Roughly a seventh of the human race dwells there. Like the Nile, the Yangtse is a great silt-bearing stream which overflows yearly and furnishes the lands with rich growing soil. One sails up the river for 1600 miles, through cities containing millions of population.

I do not hesitate to say that I firmly believe the Yangtse river valley will yet be the greatest steel producing country in the world.

It is of national significance, vital to the shipping industry and the mercantile marine of America, how we view this great, nearly virgin field of commerce—whether our merchants and manufacturers and farmers regard foreign trade seriously, not merely hopping in and hopping out when the mood strikes them or when the going becomes tough; and whether the question of a merchant marine, a fleet of cargo vessels flying the American flag, is to be treated constructively or destructively by those who have in their power the making or breaking of it.—CAPT. ROBERT DOLLAR, *president, Dollar Steamship Co., in Marine Review.*

IRON TRADE REVIEW

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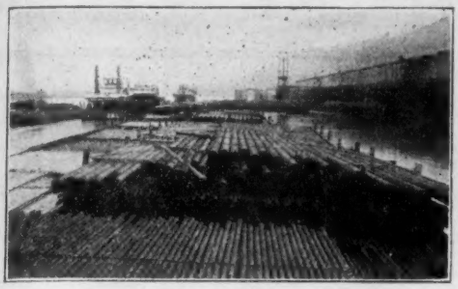
E. L. SHANER, Editor. — J. D. PEASE, Advertising Director. — F. F. LIGHT, Circulation Manager.



Great Ohio River Project Nears Completion. Page 910.

THE doctrine of large per capita production, with adequate remuneration for capital and labor, and fair prices for consumers, is summed up admirably in the article beginning on page 899. Written by T. W. Robinson, vice president, Illinois Steel Co., for a recent meeting of the Iron and Steel institute of London, it expresses the American concept of the right relations between the three factors in industry. "The secret of America's wellbeing is its unrivalled per capita output," he says, and he proceeds to prove the point.

The Readers' Page

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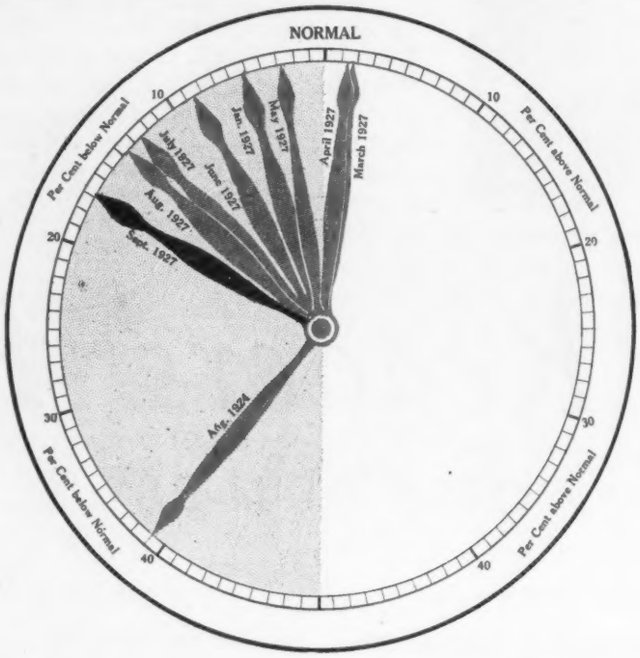
The Business Trend

Blast Furnace

The Dial represents the Blast Furnace Index of Business which is based upon a 40-year record of furnace activity. It is a barometer of general trade.



Business Dial

When 60 per cent of all the country's furnaces are in blast business conditions are normal. The Index is now lower than the normal point on the dial.

Fall Recovery Continues Sluggish

By JOHN W. HILL, Financial Editor

THE implied promise of an increase in activities in the iron and steel industry as seen in the records of August, was not carried out in September. During the month there were further declines for steel ingot and pig iron production and blast furnace activity. At the moment it appears that the belated upward turn has come, but it is a slow and sluggish one.

WITH a decline of eight in July and of only one in August, an increase in blast furnace activities was indicated for September. Instead, however, there was a further sharp slump of eight furnaces from the active list. At the close of the month 181 furnaces were in blast compared with 189 in August. Of the 362 serviceable furnaces in the country 50 per cent were active when September closed.

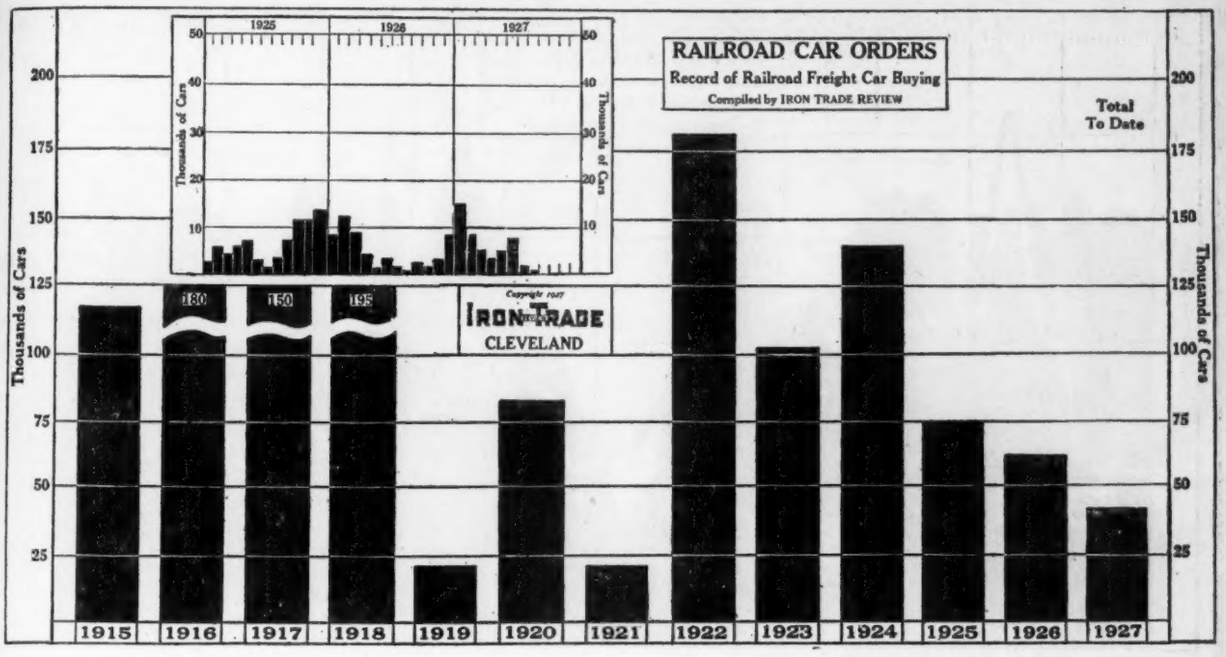
THE total number of furnaces in blast on Sept. 30 was the lowest for any month since September, 1924. On that date 174 furnaces were making iron. At the end of last month the blast furnace business dial stood nearly 17 per cent below normal, the lowest point touched in 1927. The daily average rate of pig iron production for the month was the lowest for any month since September, 1925.

OPERATIONS of the iron and steel industry which had dropped to 62 per cent of capacity a few weeks ago, are now slowly climbing to the 65 per cent level. This compares with a level of activity of about 85 per cent at this time one year ago. The causes of the low rate of operations compared with those of 1926 are not difficult to discover.

OF THE four most important consuming lines of steel, only one, that of building construction, is holding its own compared with last year. The other three great sources of steel consumption are the automobile industry, the railroad equipment industry, and the petroleum industry. Because of the far-spreading uncertainty in the automobile industry, activities there are over 30 per cent behind the 1926 rate. Railroad equipment buying has dropped below that of 1926, while the oil industry continues in the throes of over-production and weak markets.

MEANWHILE there is every indication that the demand for automobiles is accumulating to a point which eventually will bring a great spurt of activity in that quarter. Railroads also are beginning to buy large amounts of rails which will stimulate mill activities later.

The Business Trend

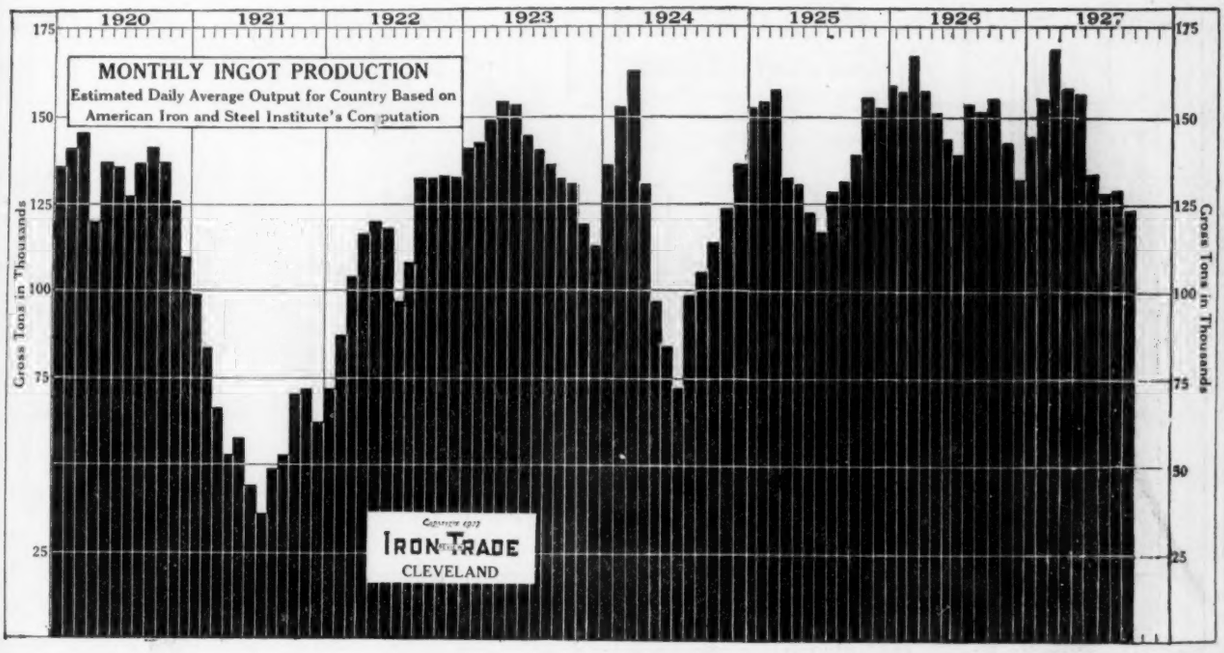


Railroad Car Orders

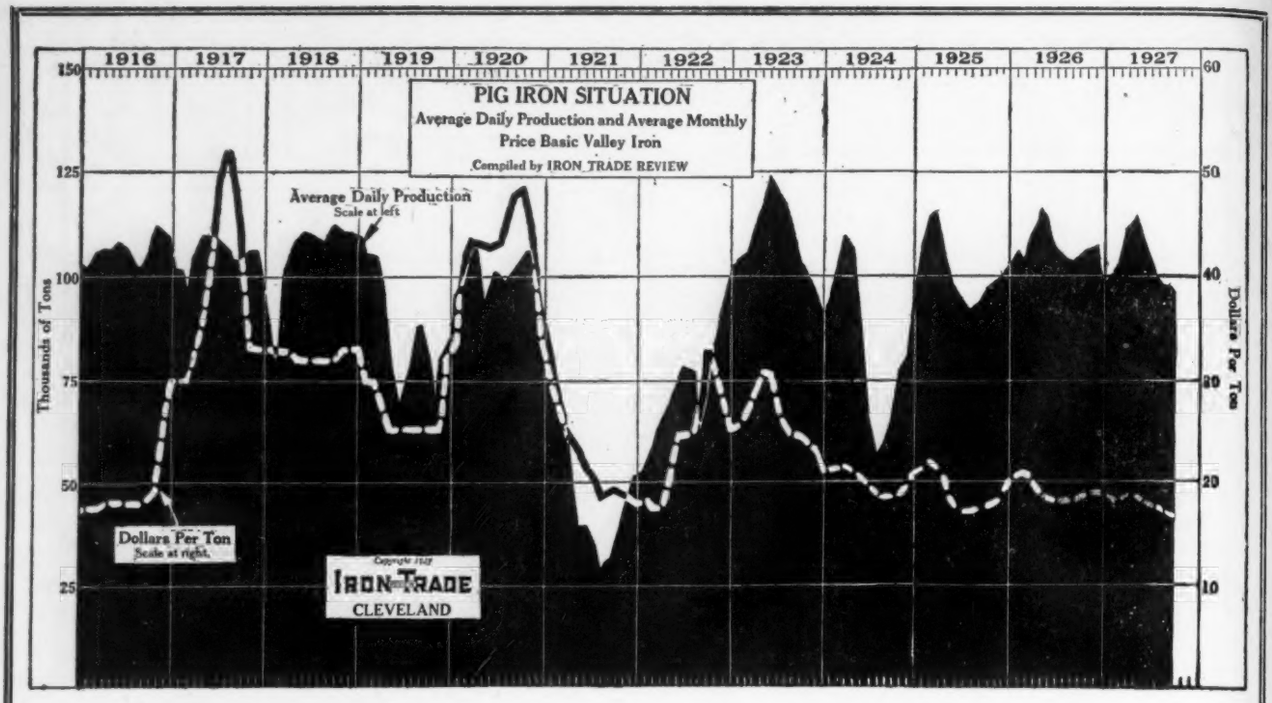
FREIGHT car awards dropped to one of the lowest points on record in September with a total of 357 cars. Aggregate awards for the first nine months of the year was 43,723 cars compared with 44,668 cars in the corresponding period of 1926. Until the September record appeared this year's purchases of new cars by the railroads were running slightly ahead of those for 1926. Reduced freight movements this year compared with 1926 are partly responsible for the smaller car buying.

Ingot Production

PRODUCTION of steel ingots in September was at daily average of 124,312 tons. This was a decline from the daily average of 128,552 tons in August and from the 150,515 tons in September, 1926. Compared with August the decline was 3.2 per cent and compared with September, 1926, it was 17.4 per cent. For the first nine months of the year output was 33,499,794 tons, a decrease of 6.1 per cent from the corresponding period of 1926. Clearly, this year's total will fall below 1926.



The Business Trend

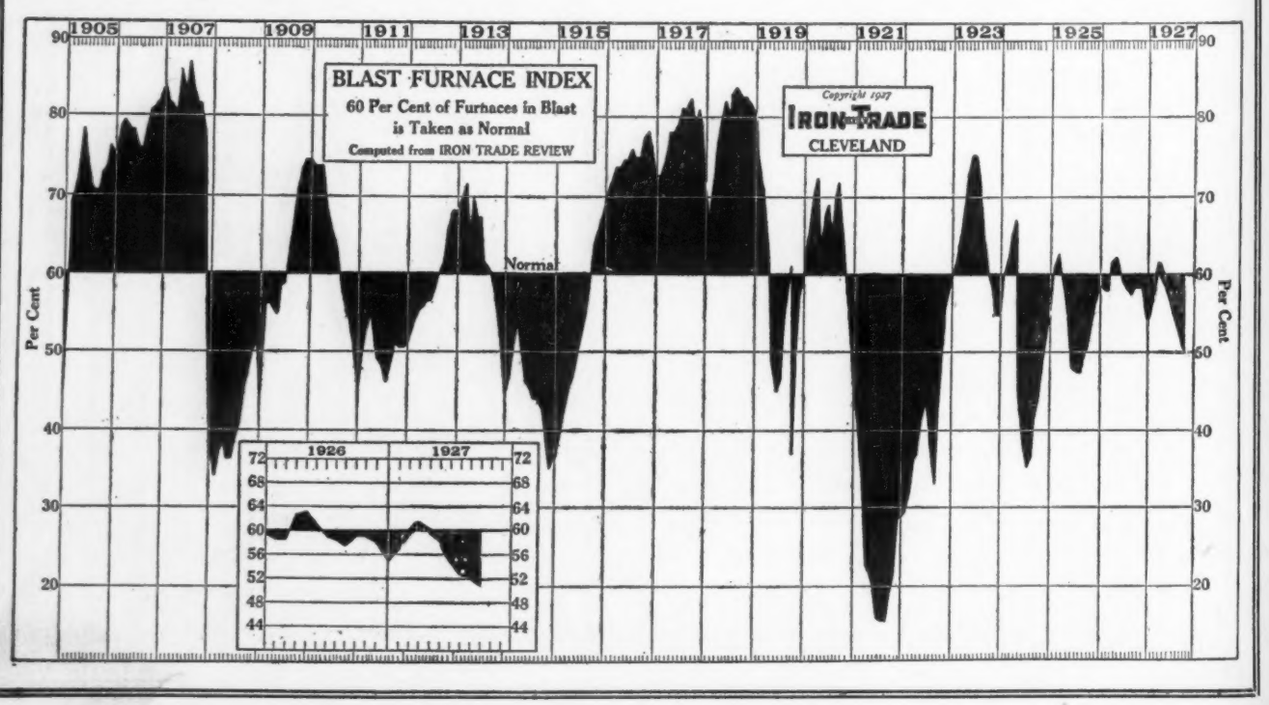

PIG IRON SITUATION
Average Daily Production and Average Monthly Price Basic Valley Iron
Compiled by IRON TRADE REVIEW
Average Daily Production
Scale at left
Dollars Per Ton
Scale at right
Thousands of Tons
Dollars Per Ton
1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927
IRON TRADE
CLEVELAND

Pig Iron Situation

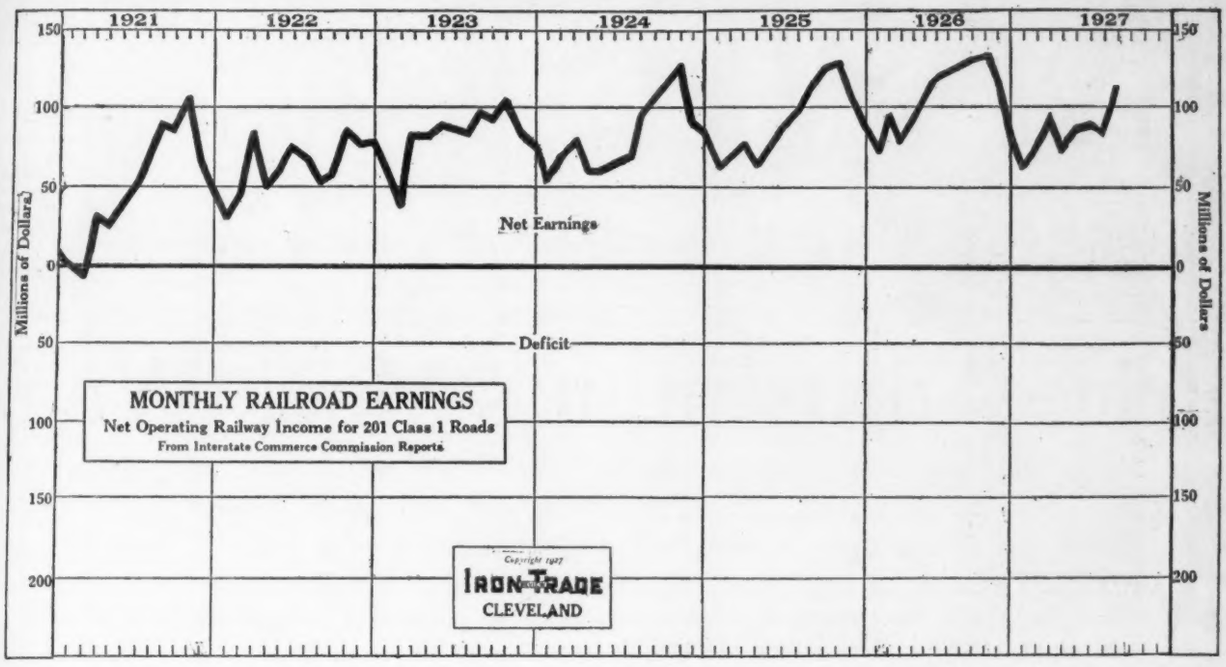
PRODUCTION of pig iron in September dropped to the lowest average daily rate of any month since September, 1925. The output stood at 92,720 tons compared with 95,183 tons in August and 105,442 tons in September, 1926. In September, 1925, the daily average rate of pig iron production was 90,862 tons. The daily rate last month was 2.6 per cent below that of August and 12 per cent below that of September, 1926. Nine months' output was 28,116,120 tons against 29,439,080 tons in 1926.

Blast Furnace Index

AT THE close of September 181 furnaces were in blast. This was 50 per cent of the 362 serviceable furnaces in the country. During the month there was a net loss of eight furnaces from the active list, compared with a loss of only one furnace in August and eight in July. The total number of active furnaces on Sept. 30 was the lowest for any month since September, 1924, when 174 furnaces were making iron. The decline in furnace operations is a reflection of the retarded rate of industrial activities.


BLAST FURNACE INDEX
60 Per Cent of Furnaces in Blast is Taken as Normal
Computed from IRON TRADE REVIEW
IRON TRADE
CLEVELAND
Normal
Per Cent
1905 1907 1909 1911 1913 1915 1917 1919 1921 1923 1925 1927
1926 1927

The Business Trend

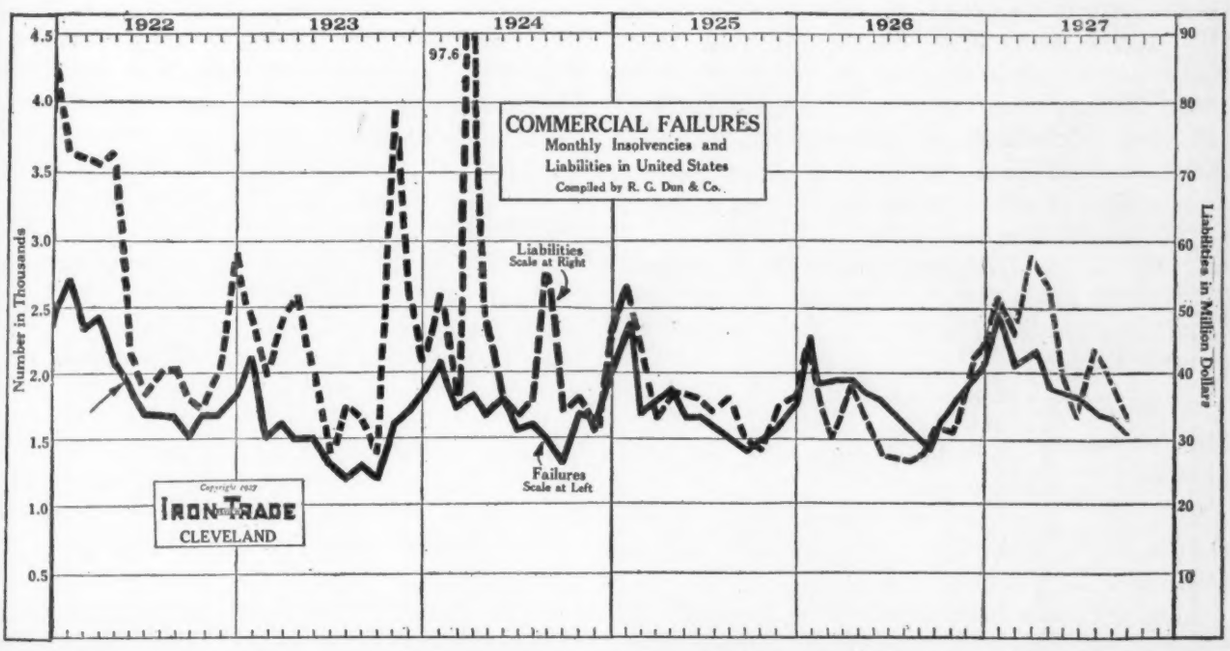


Railroad Earnings

THE aggregate net operating income of class 1 railroads for August was $118,226,507. This compared with $84,383,000 in July and with $139,959,651 for the corresponding month of 1926. The August, 1927, net was equal to an annual rate of return of 4.77 per cent on the railroads' property investment. The August, 1926, net equaled 5.5 per cent on property investment. Net income for the first eight months of 1927 was $675,223,500 compared with $745,258,187 one year before.

Commercial Failures

SEPTEMBER'S record of business failures made the best showing of any month this year. The number of commercial defaults was 1573 compared with 1708 in August. The total was greater, however, than that of 1437 failures in September, 1926. Liabilities amounted to $32,786,125, compared with $39,195,953 in August and $29,989,817 in September, 1926. To Oct. 1 failures this year showed an increase of 7.5 per cent over the corresponding period of 1926.



Price Adjustments Mark Week

Sheets, Pig Iron, Coke, Scrap Find Lower Levels—September Daily Ingot Output Smallest Since July, 1925—Unfilled Tonnage Drops Slightly—Market Spotted, with Some Encouraging Features

WHILE the general picture of the iron and steel markets has not changed much from a week ago there are individual indications of an encouraging tendency. Some mills are showing a substantial increase in business in a wide variety of lines, although the market still lacks the zest heavy automotive demands would bring to it. Price readjustments, however, occupy the center of attention this week; lower levels being developed in pig iron, coke, sheets, scrap, hot strip steel and some other products.

Pig Iron and Coke Easier

Lacking new buying impetus, the pig iron market shows further price declines, notably in Chicago and eastern Pennsylvania districts. A leading Chicago merchant producer has reduced foundry iron $1 to $18.50, base, furnace, the first cut since the beginning of August. In that district 15,000 tons were sold in the past week. Eastern Pennsylvania prices are down 25 to 50 cents, foundry iron now being quoted $19.25 to $20, base, furnace. Middle interests in some instances have been able to buy below $17.50, base, valley. Eastern pipemakers have purchased 14,000 tons of iron and are regotiating for 15,000 tons additional. Beehive furnace coke is 10 to 15 cents a ton lower than a week ago, recent sales being closed at $2.75 to $3, and some contracting done at $2.85.

Sheet Prices Lower

Large sheet producers have met competition from mills offering concessions, and prices are down $2 on practically all grades. The usual quotation on full finished sheets now is 4.15c; on galvanized 3.75c and on blue annealed 2.15c.

Blue annealed in certain widths in some instances figure back to 2.10c, base. Black sheets are offered at 2.90c, though 3.00c still applies to some specialties. Sheet orders show a slight increase.

Rail buying continues one of the bright features of the market. The Santa Fe placed a total of 121,300 tons with four makers, which with orders noted in last week's reports, and new inquiries that have appeared, bring the aggregate in sight close to 800,000 tons. Rail mill operations are responding to this in anticipation of early 1928 deliveries.

Canadian railways have recently placed 50,000 tons of rails with the Sault Ste. Marie, Ont., steelworks.

Ingot Output Declines

Steel ingot production in September did not step up from August, in which month the first gain was made since March. September daily output—124,312 tons—represented a drop of 3.3 per cent from that of August. September had the lowest daily output of any month since July, 1925, with 118,634 tons. Total production—3,232,108 tons—was 17.4 per cent less than in September, 1926. The output in the first nine months of 1927 was 33,499,794 tons, a loss of 2,189,357 tons, or 6.14 per cent from the comparable period of 1926.

Buying of bar mill products, and specifications, have tapered off, in contrast with recent steady activity. This is not pronounced, however, and is due largely to slackening in business from automotive parts makers. Continued favorable outlook in the building industry is affecting structural steel and reinforcing bars. About 8000 tons of shapes were awarded at Chicago. Some additional tank plates for southwestern fields have been closed. Prices of steel bars, plates and shapes appear to be slightly more stabilized at

The Market Section

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Oct. 12, 1927	Sept., 1927	July, 1927	Oct., 1926
PIG IRON				
Bessemer, valley, del., Pittsburgh	$19.76	19.86	20.26	20.86
Basic, valley	17.00	17.15	17.50	17.85
Basic, eastern del., eastern Pa.	19.50	19.75	20.50	21.00
*No. 2 foundry, del., Pittsburgh	19.26	19.26	19.26	20.11
No. 2 foundry, Chicago	18.50	19.50	20.00	21.00
*Southern No. 2, Birmingham	17.25	17.25	17.45	20.00
*Southern Ohio, No. 2 Ironton	20.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	21.50	21.50	22.00	22.50
**No. 2X, eastern, del. Phila.	21.01	21.01	21.51	22.51
Malleable, valley	17.50	17.50	17.50	18.35
Malleable, Chicago	18.50	19.50	20.00	21.00
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del., Pittsburgh	18.76	18.76	18.76	19.61
Ferromanganese, del., Pittsburgh	94.79	94.79	94.79	99.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.85	2.85	2.90	3.65
Connellsville, foundry, ovens	3.75	4.00	4.00	4.65
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	33.90	33.75	36.00
Sheet bars, open-hearth, Pittsburgh	34.00	33.90	33.50	36.00
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	35.00
Wire rods, Pittsburgh	43.00	43.00	43.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.75	1.80	1.80	2.00
Steel bars, Chicago	1.85	1.85	2.00	2.10
Steel bars, Philadelphia	2.07	2.07	2.12	2.32
Iron bars, Philadelphia,	2.07	2.07	2.17	2.22
Iron bars, Chicago	1.90	2.00	2.00	2.00
Shapes, Pittsburgh	1.75	1.80	1.80	2.00
Shapes, Philadelphia	2.07	2.02	2.07	2.22
Shapes, Chicago	1.85	1.85	2.00	2.10
Tank plates, Pittsburgh	1.75	1.80	1.80	1.90
Tank plates, Philadelphia	2.07	2.07	2.12	2.22
Tank plates, Chicago	1.85	1.85	2.00	2.10
Sheets, black, No. 24, Pittsburgh	2.90	3.00	3.00	3.05
Sheets, blue anl., No. 10, Pittsburgh	2.15	2.25	2.25	2.35
Sheets, gal., No. 24, Pittsburgh	3.75	3.85	3.85	3.90
Sheets, black, No. 24, Chicago	3.15	3.15	3.15	3.25
Sheets, blue anl., No. 10, Chicago	2.40	2.40	2.40	2.55
Sheets, galvanized, No. 24, Chicago	4.00	4.00	4.00	4.10
Wire nails, Pittsburgh	2.55	2.55	2.55	2.65
Wire nails, Chicago	2.60	2.60	2.60	2.70
Tin plate per base box, Pittsburgh	$5.25	5.50	5.50	5.50
OLD MATERIAL				
Heavy steel, Pittsburgh	14.50	15.00	14.95	17.00
Heavy melting steel, eastern Pa.	14.00	14.00	13.75	16.65
Heavy melting steel, Chicago	11.75	12.20	12.10	13.05
No. 1 wrought, eastern Pa.	15.75	15.75	16.25	17.00
No. 1 wrought, Chicago	11.50	12.70	12.35	14.50
Rails for rolling, Chicago	14.75	15.20	14.60	16.65

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (October 12, 1927)	**$35.55**
Last week (October 5, 1927)	**36.05**
One month ago (September, 1927)	**36.18**
Three months ago (July, 1927)	**36.41**
One year ago (October, 1926)	**38.08**
Ten years ago (October, 1917)	**67.75**
Fourteen years ago (October, 1913)	**24.91**

1.75c, Pittsburgh, and 1.85c, Chicago.

Scrap prices continue to settle, 25 to 50 cents being marked off principal grades. Heavy melting steel has dropped to $11.75 to $12.25 at Chicago, following the purchase of 5000 tons by a steelworks at the latter figure.

A tendency is noted in some districts to offer $1 to $2 concessions on hot rolled strip steel.

Unfilled tonnage of the United States Steel Corp. failed to follow tradition and advance in September. After three months of slight successive gains it dropped 47,924 tons last month, standing at 3,148,113 tons Sept. 30. A year ago the corporation's unfilled commitments totaled 3,593,509 tons.

IRON TRADE REVIEW'S composite of 14 leading iron and steel products shows a drop this week of 50 cents to $35.55. This is the largest decrease since the week of April 8, 1925, with a decrease of 53 cents from 40.22 to $39.69.

Late News Flashes

Chicago Operations at 60 Per Cent

Chicago, Oct. 11.—Current volume of buying of finished steel fails to make for increased ingot production in the Chicago district. The operating rate shows little change at about 60 per cent for the district. The leading interest, which has been operating 14 of its 27 steelworks furnaces for some time, has banked E furnace at South Chicago and No. 11 stack at its Gary works for a short period. Out of the 36 steelworks stacks in the district 20 are in blast.

Postpone Action on Steel Dumping Charges

Washington, Oct. 11.—Action on the charges against German producers that they are dumping steel in the United States has been postponed for some time by the government. It is believed no order will be issued owing to diplomatic interference.

Valley Operations Slightly Better

Youngstown, O., Oct. 11.—Slightly improved operations in most finishing mill departments are reported by Youngstown district independents, while the Steel corporation's steel output remains stationary at 55 per cent of capacity. Of the 127 independent sheet mills 76 are scheduled for this week against 62 last week. Tin plate operations have also increased, averaging about 80 per cent.

New Fords Expected Out Soon

Detroit, Oct. 11.—Assembly is expected to begin within a few days on the new Ford models. Production of parts has been under way for several weeks, and the first assembly was started a few days ago, according to announcement just made by the Ford Motor Co. The River Rouge plant now houses the assembly line and the Highland Park plant will be used for the manufacture of parts.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30 to 39.30
Chicago	33.00 to 35.00
Forging, Pittsburgh	39.00
Forging, Philadelphia	43.30 to 44.30

SHEET BARS

Pitts., Young., and Cleve.	$34.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh	43.00
Cleveland	43.00
Chicago	42.50 to 43.00

Standard extras, $5 for screw stock: $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

All grades, Pittsburgh	1.75c to 1.85c

Standard Structural Shapes

Pittsburgh	1.75c to 1.85c
Philadelphia	2.07c to 2.17c
New York	1.94c to 2.14c
Chicago	1.85c
Cleveland	1.94c
Birmingham	1.90c to 2.00c
Pacific coast, c.i.f.	2.40c

Steel Plates

Pittsburgh	1.75c to 1.85c
Philadelphia	2.07c to 2.12c
New York	2.09c to 2.14c
Chicago	1.85c
Cleveland	1.94c
Birmingham	1.90c to 2.00c
Pacific coast, c.i.f.	2.40c

Iron and Steel Bars

Pittsburgh, soft steel	1.75c to 1.85c
Pittsburgh, cold finishing	1.90c
Pittsburgh, forging quality	1.90c
Philadelphia, soft steel	2.07c to 2.12c
New York, soft steel	2.09c to 2.14c
Chicago, soft steel	1.85c
Cleveland, soft steel, mill	1.75c
Cleveland, soft steel, del.	1.80c to 1.94c
Birmingham, soft steel	1.90c to 2.00c
San Francisco, soft steel	2.35c to 2.40c
Pittsburgh refined iron	2.75c to 4.25c
Pittsburgh, reinforcing billet	1.75c to 1.85c
Chicago, reinforcing billet	2.30c to 2.75c
Chicago, reinforc. rail steel	1.90c to 2.40c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.80c to 1.85c
Mill, rail steel	1.65c to 1.75c
Philadelphia, common iron	2.07c to 2.22c
New York, common iron	2.09c to 2.24c
Chicago, common iron	1.90c

Hoops, Bands, Strips

Hoops, Pitts., 6 in. and under	2.30c
Bands, Pitts., 6 in. and under	2.30c
Bands, Pittsburgh, over 6 in.	2.10c
Hot rolled strip, Pitts., stamping quality, over 6 in.	2.10c
Hot rolled strip steel, Chicago	2.20c to 2.50c
Bands, Chicago, under 6-in.	2.40c to 2.50c
Bands, Chicago, 6 in. and over	2.20c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.00c to 3.25c
Worcester, Mass.	3.40c
Stripsheets, 12 in. and wider, Pittsburgh	3.00c

Cold Finished Steel

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Steel shafting, Pittsburgh, Chicago	2.30c
Cold finished steel bars, Cleve.	2.25c

Chain, Piling, Cut Nails

Cut nails, c.l., f.o.b. Mills	2.80c
Chain, 1-in. proof coil. Pitts.	6.00c
Sheet piling base, Pittsburgh	2.20c to 2.25c

Alloy Steel

Hot Rolled

F.o.b. Pittsburgh or Chicago

To Tonnage Users in Auto Industry

S.A.E. Series Numbers	100 lbs. Bars
2100 (*½ per cent Ni 0.10 to 0.20 per cent C.)	$2.90 to 3.00
2300 (3½ per cent nickel)	4.10 to 4.25
2500 (5 per cent nickel)	5.00 to 5.10
3100 (Nickel chromium)	3.10 to 3.20
3200 (Nickel Chromium)	4.50 to 4.75
4100 (Chromium molybdenum)	3.10 to 3.20
4100 (Ch. mol. 0.25-0.40)	3.90 to 4.05
4615 (Ni. molyb. 1½, 0.10-0.20 molyb.)	4.25 to 4.50
5100 (Chrom. steel)	3.10 to 3.20
6100 (Ch. Van. Forg.)	4.00 to 4.10
6100 (Ch. Van. spring)	3.60 to 3.80
9200 (Silico Mang., spring steel)	3.00 to 3.20
9250 (Silico Mang., spring steel)	3.00 to 3.10
N. C. V., (1½% Ni. 1% Chr., Van. 15)	4.10 to 4.20

*Mill number not formally accepted by S. A. E.

Hot rolled alloy billets 4 x 4-inch and over take the same prices per gross tons as same specification of alloy bars per net ton. Sizes from 4 x 4-inch down to 2½ x 2½-inch take same basis plus $5 a ton extra. Billets smaller than 2½ x 2½-inch take bar price on net ton basis.

Cold Rolled

Cold rolled alloy steels take 1c a pound extra over hot rolled when mean carbon is 0.30 or under. When the carbon is above 0.30 the extra for cold rolled is 1.75c, including annealing.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.90c to 3.00c
No. 24, Philadelphia, delivered	3.22c to 3.32c
No. 24, Gary, Indiana Harbor	3.10c
No. 24, Chicago, delivered	3.15c
No. 24, Birmingham, base	3.15c

TIN MILL, BLACK

No. 28, Pittsburgh	2.90c to 3.00c
No. 28, Gary base	3.20c

GALVANIZED

No. 24, Pittsburgh base	3.75c
No. 24, Philadelphia, delivered	4.07c to 4.17c
No. 24, Gary, Indiana Harbor	3.95c
No. 24, Chicago, delivered	4.00c
No. 24, Birmingham, base	4.00c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.15c
No. 10, Philadelphia, delivered	2.47c to 2.57c
No. 10, Gary, Indiana Harbor	2.35c
No. 10, Chicago, delivered	2.40c
No. 10, Birmingham, base	2.40c

AUTOMOBILE

No. 28, Pittsburgh, base	4.15c

IRON

No. 10, Pitts., blue ann., c.l.	2.90c
No. 24, Pitts., Box annealed, 1-pass cold rolled, carload	3.85c
No. 24, Pitts., gal., c.l.	4.85c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25 to 5.50

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.20c

*Price subject to quantity differentials.

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra

F.O.B. Cleveland and Pittsburgh base

	Per 100 lbs.
Bright plain wire, No. 9 gage	2.40c
Annealed fence wire	2.55c
Galvanized wire, No. 9 gage	3.00c
Barbed wire, painted	3.00c
Barbed wire, galvanized	3.25c
Wire nails	$2.55
Galv'd nails, shorter than 1-in.	4.55
Galv'd nails, 1-in. and longer	4.55
Polished staples	3.00
Galvanized staples	3.25

Coated nails, 100 lb. kegs, subject to Sept. 1, 1926, extra card over wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts., 60 to 70 lb.	25.00 to 27.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts. stand	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	2.25c

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del. 2½ points less.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled 3¼ to 3½-inch	46 off

Further discounts of seven 5 per cents for carolads or six 5 per cents for less-carload, on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal two 10 per cents to two 10 and one 5 per cents.

Cast Iron Water Pipe

Prices per net ton

	Class B Pipe
Six-inch and over, Birming'm	$28.00 to 30.00
Four-inch, Birmingham	32.00 to 34.00
Four-inch, Chicago	38.03 to 40.20
Six-inch to 24-inch, Chicago	34.03 to 36.20
Over 24-inch, Chicago	45.20
Four-inch, New York	40.25 to 41.60
Six-inch and over, New York	36.80 to 38.25
Standard fittings, Bir. base	$100.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 80-10-5 off in packages; 80-10-5 with 2½ off in bulk.	
Tire bolts	60-5 off

NUTS

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset, 1-in. diam. and smaller	80-10-10 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.75c to 3.00c
Structural rivets, c.l., Chicago	2.85c to 3.10c

**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland and Chicago 70 and 10 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.70 to 6.90 off
Wrought c.l., Pitts. dist.	6.75 off
Lock washers (dealers')	85-5 off
Lock washers (consumers)	85 off

Pig Iron

Chicago Price Marked Down $1— Eastern Pennsylvania Quotations Also Lower— Activity Is Moderate

PIG iron demand continues restricted to small tonnages for early shipment. Sales in the past week were the largest in the Chicago district, where furnaces booked a total of 15,000 tons. The third cargo of pig iron arrived by boat from eastern furnaces, the three recent shipments aggregating 8000 to 10,000 tons. A large portion of melters' requirements for fourth quarter have been closed, amounting in some districts to as much as 90 per cent of the estimated needs. A leading merchant producer at Chicago has reduced its price $1 to $18.50, base, furnace, and other sellers are expected to follow this action. Lower prices also are quoted by eastern Pennsylvania furnaces, the range now being $19 to $20, base, furnace. The valley market remains quotable at $17.50.

PITTSBURGH, Oct. 11.—The pig iron market here is absolutely lacking in features. Indicative of the quiet conditions the trade still is talking about the Westinghouse Electric & Mfg. Co.'s inquiry out more than two weeks ago, involving its foundry iron requirements for Trafford City, which has not yet been placed. It is understood a middle interest paid in cash less than $17.50, base, valley for a tonnage of foundry iron from a steel interest, for speculation, but producers have not quoted less than $17.50, base, to consumers. No demand is noted for malleable or basic in either inquiries or sales. Bessemer activity is confined to a few single carloads, at $18, valley. Middle interests are endeavoring to buy basic iron at $16, valley, but cannot find takers. Producers are quoting $17, valley.

Boston, Oct. 11.—General Electric Co. is inquiring for 625 tons of foundry iron for last quarter shipment to its Lynn and Everett plants. In the absence of business of size, there is little real test of the market. Buffalo iron continues to be held at $17, base, furnace, and no sales apparently have been made at less than this level. The range on Mystic iron for business here is $19 to $21, base, furnace, and some sales have been made at higher figures by this interest. This price range represents the usual market in this territory.

New York, Oct. 11.—Business in the pig iron market in the metropolitan district during the past week has been exceedingly slow. Indications are that fully 90 per cent of the tonnage to be consumed during the rest of the year has been purchased. Somewhat lower prices have developed on eastern Pennsylvania iron, on which the range now is $19 to $20 base, furnace. Somewhat lower than $19 has been done in one or two cases; however, anything under $19.50 base still is exceptional. On eastern New York state iron the minimum is $18, base, furnace with higher prices where the freight rate permits. On Massachusetts iron the current range is $19 to $21 depending upon the freight. The General Electric Co. has bought 625 tons of foundry iron for its Lynn and Everett, Mass., plants. American Car & Foundry Co. has bought 200 tons of gray forge iron for Berwick, Pa. Abendroth Bros., Port Chester, N. Y., are inquiring for 150 to 200 tons of high silicon foundry iron. Business in foreign iron is limited to small lots of India foundry iron at $21.50 to $22, duty paid, tidewater. Dutch iron at $22, duty paid, and English hematite at $23.50 duty paid.

Philadelphia, Oct. 11.—The Baltimore & Ohio R. R. is inquiring for 300 to 400 tons of foundry iron for last quarter delivery to its Mont Clare shops, Baltimore.

Pig Iron Prices

Per gross ton

Bessemer, valley furnace	$18.00
Bessemer, del. Pittsburgh	19.76
Basic, valley furnace	17.00
Basic, del., Pittsburgh	18.76
Basic, Buffalo furnace	16.50 to 17.00
Basic, del., eastern Pa.	19.50 to 20.00
Malleable, valley furnace	17.50
Malleable, del., Pittsburgh	19.26
Malleable, del., Cleveland	19.00
Malleable, Chicago furnace	18.50 to 19.50
Malleable, Buffalo furnace	17.00 to 17.50
Malleable, del., eastern Pa.	21.00 to 21.50
No. 1X, Eastern del., Phil.	21.26 to 21.76
No. 1X, Buffalo furnace	17.50 to 18.00
No. 1 foundry, Chicago furnace	19.00 to 20.00
No. 2 foundry, valley furnace	17.50
No. 2 foundry, del., Pittsburgh	19.26
No. 2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2 foundry, Chicago furnace	18.50 to 19.50
No. 2 foundry, Granite City	19.50 to 20.00
No. 2 foundry, Ironton furnace	19.00 to 19.50
No. 2 foundry, del., Cleveland	19.00
No. 2 foundry del., Phila.	20.26 to 20.76
No. 2 foundry, N. J., tidewater	19.78 to 21.76
No. 2 foundry, east, N. Y. furnace	18.00 to 20.00
No. 2X, east, N. J., tidewater	19.78 to 22.26
No. 2X, eastern del., Phila.	20.28 to 22.26
No. 2X, foundry, Buffalo furnace	18.00 to 18.50
No. 2X, eastern del., Boston	23.15 to 24.15
No. 2X, foundry, Buffalo furnace	16.75 to 17.25
No. 2 Alabama, Birmingham	17.25
No. 2 Alabama, del., Cincinnati	20.94
No. 2 Tenn., Birmingham base	17.25 to 18.00
No. 2 Tenn., del., Cincinnati	20.94
No. 2 Alabama, del. Philadelphia	23.26
No. 2 Alabama, del. Chicago	23.26
No. 2 Ala., del. Chicago river-rail	21.43
No. 2 Ala., del. Boston, rail-water	24.16 to 25.16
No. 2 Alabama, del. Cleveland	23.26
No. 2 Alabama, del. St. Louis	21.67
No. 2X, Virginia furnace	21.50
No. 2X, Virginia, del. Phila.	26.04
No. 2X, Virginia, del., Jers. City	26.37
No. 2X, Virginia, del. Boston	26.71
Gray forge, val., del., Pittsburgh	18.76
Low phos., standard, valley	27.50
Low phos., standard Phila.	25.26 to 27.79
Low phos., copper bearing fur.	23.50 to 24.00
Charcoal, Birmingham	29.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $25.50; 6 per cent $26.50; 7 per cent $27.50; 8 per cent $28.50; 9 per cent, $30.00; 10 per cent $32.00; 11 per cent $34.00; 12 per cent $36.00; 13 per cent $38.00; and 14 per cent $40.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; and 14 per cent $42.00; 15 per cent $44.50; 16 per cent $47.00; 17 per cent $49.50.

Buffalo, Oct. 11.—Pig iron inquiry totals less than 2000 tons. Sales are in proportion. No maker will shade $17, base, at present on foundry, while the range on malleable is from $17 to $17.50. Some observers doubt whether steelworks are using up anything like the amount of iron they are producing and look for them to be more active in the iron field in the near future.

Cleveland, Oct. 11.—Pig iron sales are at the lowest ebb of the year, furnace interests with headquarters in Cleveland reporting a total of 11,000 tons for the week, substantially the same as in the week preceding. Purchases are limited to small lots for early shipment, and few inquiries are pending. Some sellers characterize the situation as "the dark before the dawn." The Cleveland market is untested, at $18.50, base, furnace, while for outside shipment lake furnaces continue to quote $17.50, base, $17 and less have been done in some for Ohio and northern Indiana, though recent instances.

Chicago, Oct. 11.—The leading merchant pig iron producer in this district today announced a cut of $1 a ton in the price of northern iron, making the quotation $18.50, base, Chicago furnace. It is expected other sellers will quickly follow this action. The reduction is due partly to competition from outside territories. Requisitions on contracts are maintaining a shipping rate slightly ahead of last month's, although sales are largely spot and in small lot orders. The Wisconsin Steel Co. has blown out one of its blast furnaces, leaving two in operation. It is understood two furnaces banked by the leading interest this week, one at South Chicago, and the other at Gary, are not to be blown out. Nineteen of 36 stacks in this district are active.

Cincinnati, Oct. 11.—Two or three inquiries are reported in this market for pig iron. Sale of 200 tons of foundry iron to a Louisville firm and 100 tons of silvery iron are reported by one dealer. Orders for 600 tons of southern iron, were taken by another firm. Prices are unchanged.

St. Louis, Oct. 11.—While more interest is shown in pig iron than dur-

(*Concluded on Page* 935)

Coke

Beehive Furnace Fuel Lower—Operations To Be Curtailed if Demand Does Not Improve

BEEHIVE coke prices show further weakness, $2.75 to $3 being quoted this week as against $2.85 to $3.15 a week ago. Some contract requirements have been placed at $2.85. Heating coke has sold down to $2.50. Sales of foundry coke are confined to the price range of $3.75 to $4. Operations may be further curtailed if demand does not improve.

Pittsburgh, Oct. 11.—Further weakness is noted in the beehive coke situation. One furnace producing ferromanganese has divided a coke order, involving several thousand tons monthly for the remainder of the year; the larger portion of its requirements were placed at $2.85. Some spot market sales are noted at 10 cents under last week's minimum, namely $2.75. On the other hand some sellers have not had to go below $3, and one sold a broker a carload at $3.25, because that particular brand was wanted. Heating coke has sold as low as $2.50, but some first drawings went at $2.65. Makers feel if coke is held a few weeks higher prices then available will justify such action. Present foundry coke buyers are more confined to the class unwilling to pay the high figures. More sales are noted at $3.75 to $4, although up to $4.75 still is quoted on certain brands. Two sellers continue to maintain $5.35, but on the other hand a broker has been buying strictly standard 72-hour fuel for several weeks past at $3.65, making sales at $3.85 or more. Unless the general foundry business improves operations will drop still further this week.

Production of coke in the Connellsville region for the week ended Oct. 1 was 62,693 tons, as against 59,330 tons the preceding week, according to the *Connellsville Courier*.

New York, Oct. 11.—Demand for coke continues limited. Spot sales are small and requests for shipments on contracts are slow. Prices on spot beehive foundry coke continue to range from $4.25 to $4.50, Connellsville, for ordinary brands, with up to $5.25 on premium brands. On by-product foundry coke the market is unchanged at $8.75, ovens, equivalent to $9.59 to $10.77, delivered at Newark and other northern New Jersey consuming points.

Boston, Oct. 11.—Foundry coke business is good in this district. Oven production remains at the same level of past weeks, and prices are firm at $12, delivered.

Buffalo, Oct. 11.—Coke demand continues fair, with prices unchanged. Buffalo furnaces quote foundry at $9, ovens, and domestic at $7.

Detroit, Oct. 11.—Normal demand features the foundry coke situation in this district. Hand-to-mouth buying continues the policy of the majority of consumers with the result that a fair number of orders are being received but individual tonnages are small. The price is steady at $9, ovens.

Cincinnati, Oct. 11.—Demand for foundry coke is spotty and specifications of automobile companies now are reported on a much lower basis. One sale of 15 cars of beehive foundry coke is reported by a local seller for delivery during the month.

Chicago, Oct. 11.—By-product foundry coke shipments are continuing at a steady rate. Oven capacity is well engaged. Prices are steady at $9.75 ovens, or $10.25, delivered Chicago.

St. Louis, Oct. 11.—Demand for coke is quiet, with the trend of prices easier. Settlement of the coal strike in Illinois has had an adverse effect on domestic sizes, and is being reflected in an attitude of greater independence on the part of purchasers of fuels generally. The continued mild weather is another factor. Weakness prevails in coal. The adjacent Illinois mines, which had been idle since April, are in production, and their shipment will be contingent upon car supply. Kentucky coal is abundant.

Birmingham, Ala., Oct. 11.—Continued activity is noted in coke demand, with foundry coke held at $5.50 and spot orders commanding $6. The make is materially increased by the starting of a new battery of 49 ovens at the plant of the Alabama By-Products Corp., the daily output of plant now being 2000 tons. Independent coke producers have little coke in their yards here.

Coke Prices

Beehive Ovens

Prices per net ton

Connellsville furnace	$2.75 to 3.00
Connellsville foundry	3.75 to 4.00
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county furnace	4.25 to 5.50
Wise county foundry	4.00 to 5.00
Alabama foundry	6.00

By-Product

Foundry, Newark, N. J.; del.	9.59 to 10.77
Foundry, Chicago, ovens	9.75
Foundry, New England, del.	12.00
Foundry, St. Louis	9.75
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	9.75
Foundry, Ashland, Ky.	7.50
Foundry, Portsmouth, O.	7.50
Foundry, Detroit, ovens	9.00
Foundry, Buffalo, ovens	9.00

Ferroalloys

Market Quiet—Spiegeleisen Specifications Slow—Price Easier

Pittsburgh, Oct. 11.—The ferroalloy market manifests practically no change from week to week. In Spiegeleisen, customers are holding back their specifications and are not taking out their monthly quotas, making the producers carry the burden of the stock. This creates a slight weakness, and although large makers continue to quote $33 on the 19 to 21 per cent grade, and one has recently sold a 25-ton carload of the 16 to 19 per cent material at $32, or, at the usual dollar differential, occasional opportunities to purchase small lots under the market levels are laid open but even these prove of little or no interest to consumers. Ferromanganese users appear still to be taking out material, but no new inquiries or orders are being issued. The price is unchanged at $90, seaboard base, nobody wishing to endanger present contracts by offering lower spot prices. Other alloys are without feature, it being merely too early to consider 1928 contracts. Prices on 50 per cent ferrosilicon at $85, delivered, will probably prevail whenever the books are opened, which is expected to take place in the middle of November.

Chicago, Oct. 11.—Ferroalloys are extremely quiet. Some spiegeleisen is being offered at $31. One or two carload sales are reported. Ferromanganese also is quiet. The 500 to 1000 tons of low phos iron which had been on inquiry recently has been closed. No prices have been quoted for ferrosilicon and ferromanganese for next year.

New York, Oct. 11.—Special ferroalloys are steady in prices but shipments naturally are a little slow with steel mills slack Tungsten ore is around $10.25 a short ton unit duty paid, wolframite. Ferrotungsten is around 94.00c asked.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$90.00
Ferromanganese, del., Pittsburgh	94.79
Spiegeleisen, 19 to 21 per cent domestic furnace	33.00
Ferrosilicon, 50 per cent freight allowed	85.00 to 87.50
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.50
Ferrotungsten stand. lb. cont.	92.00 to 95.00
Ferrovanadium, 30-40 per cent, per lb. estimated on analysis	3.15 to 3.60
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18%)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala., (24 per cent)	122.50

The Market Section

Plates

Market Activity Limited to Small Lots—Some Additional Tank Awards—Prices Steady

PLATE bookings generally are of small-lot, miscellaneous character. About 3500 tons additional have been placed at Chicago for oil tanks. Eastern railroads have awarded some moderate tonnages. Eastern mills were awarded 1800 tons for a 36-inch riveted pipe line at McGill, Nev. A San Francisco company is taking bids on 6500 tons.

PLATE PRICES, PAGE 920

New York, Oct. 11.—The 1.75c, base Pittsburgh, price, equivalent to 2.09c, delivered at New York, is held very firmly on plates in practically all cases. Such exceptions as have occurred are few in number and appear to be in the nature of hangovers from the condition preceding the Steel corporation's announcement of a 1.75c minimum. Demand is somewhat better here, particularly from the railroads. Scattered orders have been placed the past week by the New York Central, Lackawanna, Lehigh Valley and Delaware & Hudson railroads. This business involved mainly plates for miscellaneous repair work. The manufacturers of oil and gasoline tanks for filling stations are taking a fair amount of tonnage. Altogether, however, the volume of business lacks snap and the demand is not as large as had been expected for October.

Pittsburgh, Oct. 11.—While an inquiry from southwest Texas involves six 80,000-barrel tanks, this tonnage is unimportant when the large plate capacity of the country is considered. Therefore, the trade cannot hope that this marks a return of interest in tankage, especially since no improvement has been discovered in oil circles generally. Small individual tank orders continue to develop from week to week, one fabricator reporting that this amounts to between 200 and 400 tons weekly although individual orders take only 20 to 50 tons. Plates are quoted at 1.75c to 1.85c, but buyers are making a stern effort to uncover 1.70c. So far the mills have not been tempted.

Detroit, Oct. 11.—Plate buying by the automotive trade continues sluggish. Demand for heavier plates for tank work is light, but the general manufacturing trade shows little change. Prices are firm, at 1.75c, Pittsburgh, on heavier tonnages, with small lots being quoted 1.80c. Sellers generally admit, however, that most any buyer can do 1.75c. One sale of about 200 tons was made at a base of 1.85c, Pittsburgh.

Chicago, Oct. 11.—Chicago district mills have booked about 3500 tons of additional plate tonnage during the week. This helps to sustain the moderate upturn in oil country demand which started several weeks ago. It is estimated that about 5000 tons of oil tankage plates now are on inquiry. The oil tank builders take their material promptly, and orders on the whole are placed quietly and with dispatch. The bulk of recent orders has been in sheared plates and consequently, in the absence of specifications from car builders, universal plate mills are not so comfortably situated as to current business. Producers have no backlogs, despite the recent revived buying from oil tank sources. The price of plates is steady at 1.85c, Chicago.

CONTRACTS PLACED

1800 tons, 36-inch riveted pipe line at McGill, Nev., for Nevada Consolidated Copper Co., San Francisco, placed with two eastern plate mills.

200 tons, miscellaneous small tanks from scattered sources, to the Riter-Conley Co.

200 tons, 54-inch lock-bar pipe for filtration plant, Sacramento, Calif., to Western Pipe & Steel Co.

150 tons, lock gates for Allegheny river dams, United States Engineers, Pittsburgh, to the Heyl & Patterson Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

6500 tons, 54-inch pipe line for Spring Valley Water Co., San Francisco; bids in Oct. 15.

1800 tons, six 80,000-barrel tanks for southwestern Texas location, unidentified buyer; bids being taken.

375 tons, riveted pipe line for city of Los Angeles; M. W. Kellogg Co. low bidder.

Unstated tonnage, 30,000-gallon steel tank on 40-foot tower for Cocoa, Fla.; bids in Oct. 14 by F. H. McFarland, mayor.

Semifinished

Small-Lot Purchases as Users' Needs Arise Feature Market —Prices Continue Steady

SHEETMAKERS are buying sheet bars only as they obtain orders for sheets, small-lot purchasing developing from day to day. Billets and slabs are moving similarly. While demand is not active prices continue steady at $33 for billets and slabs and $34 for sheet bars. Small lots of wire rods are moving at $43. Two fourth quarter billet requirements are placed.

SEMIFINISHED STEEL PRICES, PAGE 920

Pittsburgh, Oct. 11.—Intermittent specifications, with more intermittent purchases represents the character of activity in the semifinished steel market. No anticipated buying is being done, prompt needs alone being met. Sheet bar specifications have improved slightly in some directions. The price generally named is $34, it being impossible from a cost standpoint to sell for less. Billets and slabs at $33 command no more than a passing measure of interest. Some strip steel manufacturers have bought October requirements but are slow about ordering the material shipped. The expected improvement in the demand for their own products has not materialized as fast as they thought it would. One or two strip makers have purchased the greater portion of their fourth quarter billet requirements and so far as can be learned they did not lower the $33 figure. Individual specifications on forging billets are relatively unimportant from a tonnage standpoint, most orders being for single carloads. These are being billed at $39. The cold bar finishers have been specifying at a better rate upon wire rods but other users have only been taking out limited tonnages. The producers claim that $42 business is now a thing of the past and $43 is the only quotation they are naming. Skelp is quoted at 1.75c to 1.85c, with no large orders being placed. Some wheel skelp contracts are being acted against in a fair way.

Youngstown, O., Oct. 11.—Billet and sheet bars are being sold by producers here usually in small lots for quick shipment. This especially appears true of sheet bars since the smaller mills rolling sheets do not appear interested unless they have business actually booked that calls for the purchase of needed bars. Billet sales also are routine in character, covering actual requirements of users. Sheet bars hold to $34, Youngstown and Pittsburgh, while billets and slabs are $33, same bases.

Chicago, Oct. 11.—Practically no forward buying is reported in semifinished material. Rerolling billets and blooms, 4 x 4-inch base, are quoted at $33 to $35, Chicago. Wire rods are quoted at $42.50 to $43, Chicago mills.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross Tons Delivered to Consumers

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 11.50
Boston (dealers)	9.00 to 9.50
Buffalo, No. 1	14.75 to 15.25
Buffalo, No. 2	14.00 to 14.50
Chicago	11.75 to 12.25
Cincinnati (dealers)	11.75 to 12.25
Cleveland, No. 1	13.75 to 14.25
Cleveland, No. 2	13.25 to 13.75
Detroit, No. 1	11.50 to 12.00
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania, No. 2	11.50
Bethlehem delivery	13.50 to 14.00
New York (dealers) (railroad)	10.00 to 10.85
New York (dealers) (yard)	7.25 to 7.50
Pittsburgh, No. 1	14.50 to 15.00
St. Louis	11.25 to 11.75
Valleys, No. 1	15.50

COMPRESSED SHEETS

Buffalo	12.50 to 13.00
Chicago	10.50 to 11.00
Cleveland	13.25 to 13.75
Detroit	10.50 to 11.00
Pittsburgh	14.00 to 14.50
Valleys	15.00 to 15.50

BUNDLED SHEETS

Buffalo	9.50 to 10.00
Cincinnati (dealers)	9.50 to 10.00
Cleveland	11.75 to 12.25
Eastern Pennsylvania	11.00
Pittsburgh	13.00 to 13.50
St. Louis	8.00 to 8.50

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	9.00 to 9.50
Detroit	8.00 to 8.50
St. Louis	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	12.50 to 13.00
Buffalo	16.25 to 16.75
Chicago	15.00 to 15.50
Cincinnati (dealers)	17.00 to 17.50
Detroit	12.00 to 12.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	12.50 to 13.00
Buffalo	13.50 to 14.00
Chicago (net)	12.50 to 13.00
Cincinnati (dealers) net	9.50 to 10.00
Cleveland	12.00 to 12.50
Detroit (net tons)	11.00 to 11.50
Eastern Pennsylvania	13.00
New York (dealers) (mill)	9.00
Pittsburgh	12.00 to 12.50
St. Louis	13.00 to 13.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.50 to 17.00
Cincinnati (dealers)	13.50 to 14.00
Eastern Pennsylvania	17.50 to 18.50
Pitts. billet and bloom crops	20.00 to 21.00
Cleveland, billet and bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	11.75 to 12.25
Pittsburgh	11.00 to 11.50
St. Louis	11.25 to 11.75

KNUCKLES, COUPLERS, SPRINGS

Chicago	13.50 to 14.00
Eastern Pennsylvania	16.00 to 16.50
Pittsburgh	16.25 to 16.50
St. Louis	13.00 to 13.50

FROGS, SWITCHES, GUARDS

Chicago	13.50 to 14.00
St. Louis	13.75 to 14.25

ANGLE BARS—STEEL

Buffalo	15.25 to 15.75
Chicago	13.50 to 14.00
St. Louis	11.50 to 12.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 11.50
Boston (dealers)	10.50 to 11.00
Buffalo, No. 1	13.00 to 13.50
Buffalo, No. 2	14.50 to 15.00
Chicago, No. 1	11.50 to 12.05
Chicago, No. 2	11.75 to 12.25
Cincinnati, No. 1 (dealers)	11.50 to 12.00
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	15.50 to 16.00
New York, No. 1 (dealers)	12.50 to 13.00
Pittsburgh, No. 1	12.00 to 12.50
Pittsburgh, No. 2	14.50 to 15.00
St. Louis, No. 1	10.00 to 10.50
St. Louis, No. 2	11.75 to 12.25

WROUGHT PIPE

Boston (dealers)	8.00 to 8.50
Eastern Pennsylvania	12.50 to 13.00
Buffalo	13.00 to 13.50
New York (dealers)	8.75 to 9.25

YARD WROUGHT

Boston	8.50 to 9.00
Eastern Pennsylvania	15.00 to 15.50

BUSHELING

Buffalo	12.75 to 13.25
Chicago, No. 1	10.50 to 11.00
Chicago, No. 2	8.50 to 9.00
Cincinnati No. 1 (dealers)	10.50 to 11.00
Cincinnati, No. 2	7.00 to 7.50
Pittsburgh, No. 1	12.75 to 13.25
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	8.50 to 9.00
Boston	6.00 to 6.50
Buffalo	9.50 to 10.00
Chicago	7.50 to 8.00
Cincinnati (dealers)	8.25 to 8.50
Cleveland	9.00 to 9.25
Detroit	7.50 to 8.00
Eastern Pennsylvania	11.00
New York (dealers	7.00 to 7.50
Pittsburgh	11.50 to 11.75
St. Louis	6.25 to 6.75

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 13.50
Birmingham plain	8.50 to 9.00
Boston, (chemical)	10.75
Boston (dealers)	6.50 to 7.50
Buffalo	10.25 to 10.75
Chicago	10.25 to 10.75
Cincinnati (dealers)	8.75 to 9.25
Cleveland	10.75 to 11.25
Detroit	8.75 to 9.25
Eastern Pennsylvania	11.50
Eastern Pennsylvania (chem.)	15.00 to 15.50
New York (dealers)	7.25 to 7.50
Pittsburgh	11.00 to 11.50
St. Louis	9.00 to 9.50
Valleys	13.50

MIXED BORINGS AND TURNINGS

For blast furnace use

Boston (dealers)	5.50 to 6.00
Buffalo	10.25 to 10.75
Cincinnati (dealers)	8.75 to 9.25
Cleveland	10.75 to 11.25
Detroit	8.75 to 9.25
Eastern Pennsylvania	10.00 to 10.50
New York (dealers)	7.00 to 7.50
Pittsburgh	11.00 to 11.50

PIPES AND FLUES

Chicago (net)	7.50 to 8.00
Cincinnati (dealers)	8.00 to 8.50
St. Louis	9.75 to 10.25

RAILROAD GRATE BARS

Buffalo	11.00 to 11.50
Chicago (net)	11.00 to 11.50
Cleveland	12.00 to 12.50
Eastern Pennsylvania	13.00
New York (dealers)	8.75 to 9.25
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston (dealers)	6.00 to 6.50
Buffalo	11.50 to 12.00
Chicago	9.00 to 9.50
Cleveland (over 10 in.)	12.50 to 13.00
Detroit	10.00 to 10.50
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	6.00 to 6.50
Chicago	14.50 to 15.00
Eastern Pennsylvania	10.50 to 11.00

ARCH BARS AND TRANSOMS

Chicago (net)	18.50 to 19.00
St. Louis	19.50 to 20.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	12.75 to 13.25
Chicago	10.50 to 11.00
Cleveland	12.50 to 13.00
Eastern Pennsylvania	12.50 to 13.00
Pittsburgh	13.50 to 14.00
St. Louis	8.75 to 9.25

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	15.50 to 16.00
Buffalo	15.50 to 16.00
Chicago	18.75 to 19.35
Cleveland	16.00 to 16.50
Eastern Pennsylvania	20.00
Pittsburgh	19.00 to 19.50
St. Louis	19.00 to 19.50

SHAFTING

Boston (shipping point)	14.00 to 14.50
Chicago	17.35 to 17.90
Eastern Pennsylvania	17.50 to 18.00
New York (dealers)	14.00 to 14.50
St. Louis	17.50 to 18.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 13.00
Boston (consumers)	17.00 to 17.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	16.00 to 16.50
Chicago, iron	13.50 to 14.00
Chicago rolled steel	15.00 to 15.50
Cincinnati	13.50 to 14.00
Eastern Pennsylvania	15.50
New York iron (dealers)	12.00
Pittsburgh, iron	14.50 to 15.00
Pittsburgh, steel	16.00 to 16.50
St. Louis, iron	12.50 to 13.00
St. Louis, steel	14.00 to 14.50

NO. 1 CAST SCRAP

Birmingham, cupola	14.00 to 15.00
Boston	15.50 to 16.00
Buffalo	15.00 to 15.50
Chicago, No. 1 machinery	16.25 to 16.80
Chicago, No. 1 railroad	15.10 to 15.65
Chicago, No. 1 agricultural	15.10 to 15.65
Cincinnati No. 1 machinery cupola (net tons dealers)	14.75 to 15.25
Cleveland, cupola	15.75 to 16.25
Detroit (net tons)	13.00 to 13.50
Eastern Pennsylvania (cupola)	16.00 to 16.50
New York, cupola (dealers)	13.50 to 14.00
Pittsburgh, cupola	14.75 to 15.50
San Francisco, delivered	20.00 to 21.00
Seattle	16.00
St. Louis, railroad	14.00 to 14.50
St. Louis, agricultural	14.25 to 14.75
St. Louis, machinery	14.50 to 15.00
Valleys	16.50 to 17.00

HEAVY CAST

Boston	15.00 to 15.50
Buffalo (breakable)	13.00 to 13.50
Cleveland	12.50 to 12.75
Detroit (automobile) (net tons)	17.00 to 17.50
Eastern Pennsylvania	16.00
New York (dealers)	11.75 to 12.00
Pittsburgh	13.75 to 14.25

MALLEABLE

Boston, railroad	14.50 to 15.00
Buffalo	14.75 to 15.25
Chicago, agricultural	13.00 to 13.50
Chicago, railroad	13.75 to 14.00
Cincinnati, railroad (dealers)	12.50 to 13.00
Cincinnati, agricultural (dealers)	11.50 to 12.00
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit, auto	15.00 to 15.50
Pittsburgh, railroad	14.50 to 15.00
St. Louis, agricultural	11.50 to 12.00
St. Louis, railroad	12.00 to 12.50

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.00 to 14.00
Boston (dealers)	10.50 to 11.00
Buffalo	16.00 to 16.50
Chicago	14.75 to 15.25
Eastern Pennsylvania	16.00
New York	11.00 to 12.00
Pittsburgh district	17.00 to 17.50
St. Louis	14.50 to 15.00

LOCOMOTIVE TIRES

Chicago, No. 1	14.50 to 15.00
Chicago, cut	15.00 to 15.50
St. Louis, No. 1	13.50 to 14.00

LOW PHOSPHORUS PUNCHINGS

Chicago	13.50 to 14.00
Pittsburgh	17.00 to 17.50

Scrap

Small Sales, Little Interest and Lower Prices—Consumers Buy Small Lots

CONTINUED decline in prices on iron and steel scrap is carrying the market by slow stages to an unusual level. Buyers find it possible to obtain such tonnages as they need at progressively less. Grades which have resisted decline for some time have joined the downward movement more recently. Production continues sufficiently large to form a burden.

Chicago, Oct. 11.—Iron and steel scrap shows further weakness, some grades being down 25 to 50 cents. Heavy melting steel is quoted at $11.75 to $12.25, a drop of 25 cents from the recent quoted level. This softening has been due to a recent purchase of about 5000 tons by a large steelworks consumer at $12.25. Railroad scrap grades also are weaker. No. 1 railroad wrought is down 25 cents and now is quoted at $10.25 to $10.75, net. Cast borings, which have maintained considerable strength recently, now are 25 cents weaker, in line with the general downward tendency of scrap.

New York, Oct. 11.—A Phoenixville, Pa., consumer has closed on a tonnage of turnings at 50 cents a ton under his former price, with local dealers now paying $10.50, delivered. This brings the dealers' buying market here down to a range of $7 to $7.50, New York. Stove plate for foundry use, is lower, dealers now quoting $9 to $9.50, New York. A Mahway, N. J., consumer is among the latest buyers of this material. In the main, consuming demand is quiet, with shipments still being held up at Conshohocken, Pa., and Swedeland, Pa. Mill operations are not up to their usual seasonal schedules. At Coatesville, Pa., plants, only 15 per cent of the open hearth furnaces are in operation, it is reliably reported.

Philadelphia, Oct. 11.—A nearby steel mill has bought a substantial tonnage of cast and No. 2 heavy melting steel about 50 cents below recent prices. Otherwise current consumer buying shows little interest.

Buffalo, Oct. 11.—No new scrap inquiry from consumers has appeared this quarter. Steelworks are taking deliveries on contracts, but dealers decline to pay more than $14.50 for heavy melting steel because of uncertainty of the future market, moving almost exclusively to dealers at the usual differentials with respect to heavy melting steel.

Pittsburgh, Oct. 11.—Scrap consumption is not increasing and it is practically impossible for dealers to book orders. A few small lots of heavy melting steel have been sold at $15, but no tonnage is involved and some dealers have been endeavoring to protect themselves at $14.50 with indifferent success. The Pennsylvania railroad realized $15.25 to $15.50 at Canton, Massillon, Youngstown, or other Ohio points, offers there being sufficiently high as compared with possibilities here, to take all of the tonnage to that section.

Cleveland, Oct. 11.—Lack of buying continues and only occasional small lots are moving. Consumers with contracts continue to limit deliveries to suit their convenience. Only a fair tonnage remains unfilled on contract. Prices are weak and nominal.

Detroit, Oct. 11.—Little improvement is noted in iron and steel scrap. New business is limited to small orders. Old orders are furnishing most current activity. Dealers are buying cautiously.

Cincinnati, Oct. 11.—Iron and steel scrap is featureless and sales are limited to carloads. Prices are unchanged. Railroad lists are of about the usual volume.

St. Louis, Oct. 11.—Iron and steel scrap continues quiet, with a markedly downward trend in prices. Buying is confined to scattered small lots for immediate use, and the total is not impressive. Sentiment among buyers and sellers is not optimistic, and no change in present conditions is expected for a month or six weeks.

Birmingham, Ala., Oct. 11.—Little change has taken place, iron and steel scrap demand being fairly good on heavy melting steel, No. 1 cast and stove plate. All quotations are still low. Heavy melting steel melters have been paying $10.75 delivered recently.

For New Rates to Dallas

Washington, Oct. 11.—The Edwards Mfg. Co., Cincinnati, has filed a complaint with the interstate commerce commission against the Alabama Great Southern railroad in which its asks the commission to prescribe reasonable rates on sheet iron, iron and steel roofing, shingles, nails, sheet steel, iron and steel ceiling etc., in straight or mixed carloads from Cincinnati and Cannonsburg, Pa., to Dallas, Tex., and asks reparation.

Sheets

More Makers Meeting Competition on Full-Finished, Galvanized and Blue Annealed Material

SHEETMAKERS do not anticipate large tonnage requirements in the near future; some of them do not expect much activity over the remainder of the year. More mills are offering autobody stock at 4.15c; galvanized at 3.75c and 2.25c on narrow blue annealed sheets sold in competition with strip steel. Owing to small lot purchasing the market is not fully tested.

SHEET PRICES, PAGE 920

Detroit, Oct. 11.—Inability of a number of automotive manufacturers to increase production schedules due to conditions in the industry continues the dominant influence on the sheet steel market in this district. Breaking of the full finished autobody sheet market recently to 4.15c, Pittsburgh, has revived uncertainty that existed last spring. Metal furniture stock has been maintained at 4.15c, although a downward revision, harmonizing with the cut in autobody is expected. An attractive tonnage of black sheets was sold to a large automotive buyer last week at 3.00c, Pittsburgh, although 2.90c is quoted commonly on large lots. Blue annealed openly is 2.10c to 2.15c on stripsheet widths, and 2.15c to 2.25c for regular jobbing mill sizes. Hudson has come out with its inquiry for November requirements.

Buffalo, Oct. 11.—Sheet bookings are light but inquiry is picking up rapidly. In addition to shading of automobile sheets from the established base of 4.25c to 4.15c, Pittsburgh, it is reported concessions also are being made on some other grades. Sheet mill operation is slightly less than two-thirds of capacity in this district.

Chicago, Oct. 11.—Chicago district sheet steel producers disclaim any weakness in the quotation for blue annealed sheets because of stripsheet competition. Mills are holding the blue annealed price at 2.35c, Gary and Indiana Harbor; and 2.40c, delivered Chicago, for carload lots. Sales of blue annealed on the whole are in small lots and mills are inclined to pass by those small-lot tonnages that are offered below the 2.35c mill price. Competition of stripsheets is felt less keenly when size ranges are offered. The roofing trade is not buying as heavily as had been expected. Operations for the district are around 80 per cent. The mill price for No. 24

galvanized sheets is 3.95c, and for No. 24 black, 3.10c.

Cincinnati, Oct. 11.—Prices of sheets in this market are firm, except as to autobody stock which is moving at 4.15c. Black sheets hold 3.00c; galvanized at 3.85c, and blue annealed at 2.25c.

St. Louis. Oct. 11.—Sheets of all descriptions are active, and producers and distributors report business satisfactory. Demand for galvanized material is particularly good, with purchasing of roofing grades by jobbers in the South and Southwest brisk.

Youngstown, O., Oct. 11.—Since no precipitate or general slide in quotations has followed in other grades upon the recent cut of $2 a ton to 4.15c, Pittsburgh, on autobody sheets, local mill managers take considerable satisfaction out of the market's present neutrality. The mild inflow of new business appears largely routine in character, mills being grateful that no large tonnage business is in sight at the moment to give the market a real test. Another bit of comfort to mills appears to be the appearance of ranges in the recently cut prices. For instance, sales of autobody sheets were made Saturday to old customers at 4.25c, although others quote 4.15c. So also on common black sheets, prices ranging from 2.90 to 3.00c. The general quotation on galvanized has come down to 3.75c, with some mills still refusing to take tonnage below 3.85c but getting few orders at that price. The range in blue annealed is 2.10c to 2.20c, the latter being for small lots of the wider widths.

Pittsburgh, Oct. 11.—After deciding to take the bull by the horns and meet the price situation superinduced by scattered manufacturers endeavoring to garner in business via the concession road, sheet manufacturers gradually have informally adopted lower prices by $2 per ton on practically all grades. This makes the full finished sheet price 4.15c, galvanized 3.75c, and blue annealed 2.15c. In connection with the latter, some apparent discrepancy still exists due to stripsheet competition. Some prices on certain widths figure back to 2.10c, while others are no lower than 2.20c, so that a 2.15c price is a fair approximation of the present market level. In connection with black sheets, however, these are quoted at 2.90c to 3.00c for the reason that certain specialties still are based on black sheets and makers are unable to change the 3.00c base figure due to productive costs. Incoming business has increased measurably this week. The Ford Motor Co. is understood to be planning an early production of 4000 to 8000 cars daily, and bodies for 4000 cars daily can be made in its own plant, but against this intended production, sheet orders have not been placed, either for the bodies the company will make itself or for those that will have to be made outside.

Boston, Oct. 11.—The expected recovery in the demand for sheets has not yet materialized and the opinion is more or less generally accepted that the volume of business will con-

(*Concluded on Page* 935)

Tin Plate

Large Requirements for First Half To Be Covered Soon

TIN PLATE PRICES, PAGE 920

Pittsburgh, Oct. 11.—After six weeks of practically perfect weather, tin plate manufacturers feel that more cans will be utilized than they thought possible two months ago for the tomato and corn crops. These are maturing nicely where they have not already matured, and while no extra orders for tin plate will be made necessary, the cans on hand will be utilized instead of being carried over into next year. In connection with the salmon pack in Alaska, however, this is only 51 per cent of last year, and the Columbia river and Puget Sound packs have likewise been lowered, hence numerous finished cans will be carried over into 1928 in that section. From time to time orders for miscellaneous lots of tin plate, some involving 500 to 1000 tons at a time, are placed and on these keen competition rules. One such was placed last week at $5.35, some smaller orders went at $5.30 and some at $5.37½. Not until the middle of November, however, will the 1928 price be definitely announced although mills are going ahead with the rolling of anticipated tonnage for use early in that year.

New York, Oct. 11.—All makers now are quoting a minimum of $4.75 per box, base Pittsburgh, on stock tin plate while for small lots as high as $5 is being obtained. These are the prices to consumers and, in some cases, jobbers are able to buy on the usual commission basis which means that they pay somewhat below the prices to consumers so as to enable them to operate on a margin. There is very little business in tin plate for production. Specifications on contracts are small.

Youngstown, O., Oct. 11.—The more important consumers of tin plate are beginning to show some interest in requirements for the first half of next year, but active negotiations for such needs have not yet started with the mills. Some independent mills in the district are on in full and with business also ahead for next week, this coming about through fill-in orders to piece out the year's contracts. Usually the carload buyers are paying $5.50 a box, Pittsburgh base, but larger consumers are able to cover down to $5.35.

Pipe

Mills Offering Additional Discounts as Buying Lags—Cast Market More Stabilized

ALTHOUGH maintaining the same price cards in effect since April 1923, tubular products makers are offering two additional 5 per cent discounts to obtain a share of the small amount of business moving. Line pipe activity is lacking. Cast iron pipe prices seem to be more stable, buyers and sellers evidencing belief that quotations have hit bottom.

PIPE PRICES, PAGE 920 AND 954

Pittsburgh, Oct. 11.—Tubular products makers are not issuing new price cards, keeping those of April 19, 1923 still in force. They are, however, meeting competition as it arises and the National Tube Co., as well as independents now is granting two extra 5 per cents instead of one in many cases on standard full weight merchant pipe. This has not inspired much extra buying but so little business was current everybody decided to meet the situation for the time being. Jobbers are not ordering heavily, simply enough to keep stocks balanced. Oil country jobbers are doing but little since oil production is kept so low. Oil line inquiries are held in abeyance, and while a few gas line inquiries come out tonnage involved is limited. No new developments are rated on the gas line which is to be built from Amarillo, Tex., to Denver.

Seamless tubes are in slightly better demand from automobile companies although other users are ordering in a poor way as for many weeks.

New York, Oct. 11.—Fully 8000 to 10,000 tons of gas and water pipe have been brought out by private interests in the immediate district during the past week. In addition, there has been some sizable tonnage of public character. Some of the particular jobs involved do not call for delivery before next spring, in one or two instances, late next year. Rather unusual is the number of inquiries now pending for water pipe. Sellers see in the general situation a growing disposition among buyers to regard the market around bottom.

Chicago, Oct. 11.—Small-lot contract orders for cast iron water pipe continue to fill the gaps of the scattered public municipal lettings. Practically no guide is offered as to prices on the contract business being placed, but producers are seeking to hold a minimum of $28, Birmingham, for the small lot offerings. St. Clair Shores, Mich., is taking bids today on a considerable quantity, and it

is reported that the city of Detroit will take bids soon on about 4000 tons.

Boston, Oct. 11.—Small business carries on and is filling the breach until municipal buying starts in the cast iron pipe market. Prices are stiffening. The outlook for fall is good.

Birmingham, Ala., Oct. 11.—Cast iron pressure pipe manufacture in the Birmingham district is placed at about 80 per cent capacity. Quotations are still low and weak but expression here is that the market has reached bottom and recuperation will start immediately. Quotations are based at $28 to $30 on 6-inch and over, but concessions have been made. Shipments are greater than production.

CONTRACTS PLACED

2200 tons, pipe, Hackensack water works, Hackensack, N. J., to the Warren Pipe & Foundry Co.

900 tons, water pipe, department of water supply, gas and electricity, awarded to the Norton Engineering Co., general contractor, to the United States Cast Iron Pipe & Foundry Co.

325 tons, 6 to 30-inch pipe for the department of water supply, gas and electricity, New York City, awarded to the Wataga Construction Co., general contractor, to the Donaldson Iron Works.

315 tons, 4 to 10-inch B, El Segundo, Calif., to Pacific States Cast Iron Pipe Co.

131 tons, 4 to 12-inch B, Park avenue, Glendale, Calif., to unnamed interest.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

88,000 feet of 6-inch, and 75,000 feet of 8-inch pipe for St. Clair Shores, Mich.; bids opened Oct. 11.

730 tons, 4 to 12-inch A and B or centrifugal for Gladstone, Oreg.; bids opened.

684 tons, 2 to 6-inch B, Burlington, Oreg.; bids in Oct. 14.

175 tons, 16-inch water pipe, department of water supply, gas and electricity, New York; bids open Oct. 14.

Several thousand tons 16-inch water pipe, class B and class C, mostly the latter, for Mount Kisco, N. Y.; bids open Oct. 17.

Unstated tonnage, involving approximately 2800 feet of 6 to 8-inch water pipe and a number of fittings, Rock Hall, Md.; bids open Oct. 17.

Orders By-Product Ovens

The Youngstown Sheet & Tube Co., Youngstown O., has awarded a contract to the Koppers Co., Pittsburgh, for 71 by-product coke ovens and a coal handling plant for its South Chicago works. Construction of the group will cost about $3,000,000. With the addition of the 71 ovens the company will have in operation at all points a total of 688 by-product coke ovens.

Zinc first was smelted on a commercial basis in Europe in 1740; it was produced commercially in the United States for the first time in 1860.

Bars

Demand Fails to Increase and Prices Remain Weak—Small Lot Buying Rules

BUYING in small lots, to cover immediate needs continues the rule in soft steel bars. No class of consumers has found need for accumulating stocks. Prices are holding at the low levels of the past few weeks. Buyers have been seeking lower levels, without success. Production is holding fairly even, with some curtailment. Bar iron buying is spotty.

BAR PRICES, PAGE 920

Chicago, Oct. 11.—It is more generally admitted that sales and specifications in bar mill products have tapered off to some extent from the steady gait of summer months. Rolling schedules, nevertheless, have not been affected materially in the past 30 days. The slack buying from automotive sources is reflected in lessened demand for bar mill products, particularly since some parts makers have been forced to curtail operations to some extent. Cold finished bars are affected by the quiet in the automotive industry. Farm implement buying and specifications continue active and promise moderate expansion during the remainder of the month. Most orders for bar products are in extremely small lots, with specifications coming in constantly for carload to 300-ton shipments.

While soft steel bar prices show no strength, some indications are seen of a more stabilized condition at 1.85c. This quotation is regarded as the ultimate minimum. Except on mixed carload and cut-to-size orders, less attempt is being made to hold 1.90c.

Rail steel bar activity has slowed to some extent. Operations are reduced from the recent high peak. Shipments of reinforcing bars continue active. Buying of rail steel fence posts is expected to be stimulated after fall terms are announced.

Bar iron business is spotty. Mills have no backlogs of orders and are operating entirely on short-range business. The price of bar iron has been reduced from 2.00c, Chicago, to 1.90c, Chicago. Rail steel bars are quoted at 1.80c to 1.85c, Chicago.

Pittsburgh, Oct. 11.—Sufficient business has not come to merchant steel bar producers to justify them in expanding operating schedules. These continue about 50 per cent. All orders are small, especially those from jobbers. Some recent orders from cold bar finishers have an automotive flavor and some spring makers have placed limited tonnages but general demand still lags. While 1.75c to 1.85c are quoted, the minimum figure generally prevails with an occasional order at 1.80c. Efforts by consumers to lower the minimum are numerous.

Detroit, Oct. 11.—The price on merchant steel bars is holding firm at 1.75c, Pittsburgh and Cleveland, for large tonnages but small lots continue to be quoted 1.80c, and a few sales are being made at 1.85c. Water shipments from Cleveland and Buffalo mills have not disturbed the local market as much as they did when 1.80c was the minimum. One Cleveland mill is making 1.75c, Cleveland as base for shipments into this territory on carbon steel bars. Some sales of lots up to 100 tons are reported closed at 1.80c.

Buffalo, Oct. 11.—Bar prices range from 2.015c to 2.065c, Buffalo. Demand is below the average. Bar mills are operating at about 60 per cent of capacity.

Iron Ore

Market Quiet—Lower Docks Hold Less Than Last Year

IRON ORE PRICES, PAGE 950

Cleveland, Oct. 11.—While users of Lake Superior iron ore are taking their contract shipments, new buying is not appearing, except for the customary small fill-in requirements. The balance on Lake Erie docks Oct. 1 was 6,768,735, or 128,615 tons less than a year ago. The following is the Lake Superior Iron Ore association's report of tons received and shipped in this season to Oct. 1 and balances at various docks:

Port	Receipts	Shipments	Dock balance Oct. 1
Buffalo	2,763,448	107,565	6,694
Erie	897,003	908,352	76,720
Conneaut	6,966,511	6,170,923	2,032,197
Ashtabula	6,134,817	5,753,408	2,328,422
Fairport	1,657,917	1,471,002	472,774
Cleveland	6,465,617	4,306,852	1,134,120
Lorain	2,920,500	1,429,971	173,894
Huron	939,836	938,327	456,306
Toledo	1,046,717	469,677	87,608
Total	29,792,366	21,556,077	6,768,735
Tot. one year previous	31,982,900	23,486,365	6,897,350

The following is the record of receipts this season at other ports:

Port	Receipts
Detroit	735,608
Indiana Harbor	1,707,690
Gary	3,464,035
South Chicago	4,672,702
East Jordan	24,601
Saulte Ste. Marie, Ontario	331,753
Point Edward, Ontario	368,254
Total	11,304,643
One year previous	11,718,447
Total receipts, lower lake ports	41,097,009

Structural Shapes

Inquiries Lacking in New York District but Awards are Numerous—Chicago Bookings of Week Almost 8000 Tons—Prices Steadier

ACTIVITY in the structural market is showing some letup in large tonnage projects. Although awards in the past week were numerous, few heavy contracts were let. Inquiries are not as numerous as recently in the New York market, although in other districts a good quantity of work is in sight. Awards in the Chicago district during the week approximated 8000 tons.

Plain material prices are showing more steadiness, with 1.75c, Pittsburgh and 1.85c, Chicago, the levels. Fabricated quotations continue to weaken with around $50 a ton for fabricated and delivered being quoted in the Pittsburgh territory. A tendency exists at New York, however, to price current coverage at market levels of a month ago. Most Chicago sellers are quoting 1.85c.

STRUCTURAL SHAPE PRICES, PAGE 920

Pittsburgh, Oct. 11.—Large structural shape awards have no part in this week's market news here. Pittsburgh's September building report was better than September, 1926, but fell below August of this year. A total of 770 permits were issued in September for work valued at $2,146,311. Bids on material fabricated and delivered have declined until $50 per ton now has to be named in order to get the work, and some shippers are not interested at that price. A few fabricators have enough work to operate at a fairly high rate the remainder of the year, and some will enter 1928 in better shape than they started 1927. Quotations on plain material have not changed from 1.75c to 1.85c, with the bulk of the bookings at 1.80c. Some buyers have tried to uncover 1.70c but so far as can be learned their efforts were unsuccessful.

New York, Oct. 11.—Structural orders appear more numerous than new inquiries, and while few large orders have been noted, business over the past week has involved a substantial total. While buyers find it increasingly hard to shade the recently announced 1.75c, Pittsburgh, price on new business, time is being extended in a number of contract cases to allow for the coverage of tonnage on the basis of a month ago. One trade interest sees in the policy of buyers to confine purchases to only immediate requirements one phase in the tendency of buyers to resist the higher prices.

Structural steel consumed in building operations in the New York metropolitan district in September, according to the Structural Steel Board of Trade, aggregated 26,000 tons, compared with 32,000 tons in August. Board members took 18,113 tons in September. This work is exclusive of bridges, subways, piers, etc.

Detroit, Oct. 11.—Awarding of contracts for fabricated structural material in this district in the past week was confined to a few small lots. Action has not been taken as yet on the Kern building, the only large project before the trade. Prices on plain material hold at 1.75c, Pittsburgh.

Chicago, Oct. 11.—With structural steel awards totaling 7500 to 8000 tons, and fresh inquiries for 4500 to 5000 tons during the week, the structural steel market in this territory has taken on a slightly brighter hue. Several jobs that had been pending in the Chicago district and farther west for some time have been closed. Fabricators are carrying extremely low stocks and their specifications to the mills usually cover only the actual orders they have in hand. The price of 1.85c, Chicago mills, prevails largely on going business. Sales of plain material at 1.90c are much fewer.

Philadelphia, Oct. 11.—Structural demand is rather slow due principally to the fact that considerable tonnage was gathered in when the price firmed at 1.75c, Pittsburgh. With most mills this is the minimum figure on new business.

Cleveland, Oct. 11.—Structural steel demand locally continues confined to small lots, although several attractive projects for the Union Terminals are in sight. Plain material is established at 1.75c, Pittsburgh, for most current buying, although small lots are quoted 1.80c.

Awards Compared

	Total
Awards this week	28,713
Awards last week	30,084
Awards two weeks ago	27,275
Awards this week in 1926	30,070
Average weekly awards, Sept.	34,609
Average weekly awards, 1927	35,496
Total awards to date, 1926	1,173,438
Total awards to date, 1927	1,448,580

CONTRACTS PLACED

3875 tons, involved in the following awards:
Office building, Newark, N. J., to Hedden Iron Construction Co.
Office, Jamaica, Long Island, N. Y., to George A. Just Co.
Garage, 212 East Seventy-fourth street, New York,
Garage, West New York, N. J.
School, No. 14, Bronx, N. Y.
Theater, Elmhurst, Long Island, N. Y.
School, No. 113 Queens, Long Island, N. Y.,
15-story apartment, 244 West Seventy-second street, New York, all to Harris Structural Steel Co.
Building at Fifty-eight street, New York, to Paterson Bridge Co.
Hospital, Elizabeth, N. J.
Building, 131st street and Broadway, New York, both to Lehigh Structural Steel Co.

2400 tons, open-hearth building for Wisconsin Steel Co., South Chicago, Ill., to McClintic-Marshall Co.
2300 tons, bridgework for Great Northern railroad, to American Bridge Co.
2000 tons, office, for N. W. Ayer & Son, Philadelphia, to the McClintic-Marshall Co.
1800 tons, bascule bridge over Calumet river at 106th street, Chicago,to American Bridge Co.
1500 tons, boiler house for the National Sugar Refining Co., Brooklyn, N. Y., to the Hedden Iron Construction Co.
1400 tons, city hall annex, Philadelphia, to American Bridge Co., previously noted as awarded McClintic-Marshall Co.
1100 tons, plant building for Fleischman Yeast Co., at Pekin, Ill., to Mt. Vernon Bridge Co.
1000 tons, 12-story office building on Hunter avenue, Long Island City, N. Y., placed, reported going to Hay Foundry & Iron Works.
1000 tons, substation for Pennsylvania railroad in Philadelphia, to Belmont Iron Works.
1000 tons, bank for the National Title Guarantee Co., Jamaica, Long Island, N. Y., to the George A. Just Co., noted last week in group tonnage.
835 tons, power house in northern Mexico to Kansas City Structural Steel Co.
800 tons, highway bridges at Borger, Tex., to Missouri Valley Bridge & Iron Co.
800 tons, medical building for Los Angeles county, Calif., to Union Iron Works.
600 tons, church, Wilshire boulevard, Los Angeles, to Union Iron Works.
600 tons, offices, Camden, N. J., to an independent fabricator.
500 tons, building for the American Can Co., Jersey City, N. J., to the American Bridge Co.
500 tons, highway bridge, Allentown, Pa., to the Bethlehem Steel Co.
500 tons, garage, Locust street, Philadelphia, to an unnamed fabricator.
400 tons, mill building, for the American Smelting & Refining Co., Baltimore, to the McClintic-Marshall Co.
400 tons, private school, Syracuse, N. Y., to Smith & Caffrey.
400 tons, car shops for the Pennsylvania railroad, Wilmington, Del., to an unnamed fabricator.
325 tons, buildings for the Tuberculosis League of Pittsburgh through Mellon-Stuart Co., Pittsburgh, general contractor, to the McClintic-Marshall Co.
300 tons, bridge for Pennsylvania railroad at Lancaster, Pa., to Belmont Iron Works.
300 tons, automobile club, Philadelphia, to the Shoemaker Bridge Co.
300 tons, high school, Johnson City, N. Y., to the Jones & Laughlin Steel Corp.
300 tons, building for Dickinson college, Carlisle, Pa., to the McClintic-Marshall Co.
300 tons, caissons for a project for the Chesapeake & Ohio railroad at Cincinnati, to a local fabricator.
300 tons, building for the Standard Plate Glass Co., Northside, Pittsburgh, through Construction Corp. of Pittsburgh, general contractor, to the Pittsburgh-Des Moines Steel Co.
225 tons, bridge for the Pennsylvania railroad, to the Bethlehem Steel Co.
200 tons, bridge for the New York, Ontario & Western railroad, Fulton, N. Y., to the McClintic-Marshall Co.
200 tons, house of correction, Baltimore, to Dietrich Bros.
200 tons, power house for B. F. Goodrich Rubber Co., at Los Angeles, to Union Iron Works.

200 tons, miscellaneous work including school near Meadville, Pa., to the Guibert Steel Co.
179 tons, Glen Ridge sanitarium, Schenectady county, N. Y., to Eastern Bridge & Structural Co.
175 tons, building for Central Fire Insurance Co., Baltimore, to Dietrich Bros.
175 tons, bridge for the Pennsylvania railroad, to the Fort Pitt Bridge Works.
165 tons, building for National Milling Co. at Toledo, O., through Newton Baxtor Co., that city, to Massillon Bridge & Structural Co.
164 tons, apartment house, Atlantic City, N. J., to Bethlehem Fabricators Inc.
160 tons, laundry, 5873 Woodlawn avenue, Los Angeles, to Llewellyn Iron Works.
150 tons, highway bridge, Philadelphia, to the Belmont Iron Works.
150 tons, municipal work, Riverside drive, New York, to the American Bridge Co.
125 tons, building for Galion Iron Works, Galion, O., through G. W. Schirmer Co., to Massillon Bridge & Structural Co.
125 tons, Englewood Masonic temple, Chicago, to American Bridge Co.
120 tons, addition to power house of Sioux City Gas & Electric Co., Sioux City, Iowa, to Mississippi Valley Structural Steel Co.
100 tons, miscellaneous work in Pittsburgh territory, to the W. N. Kratzer Co.
100 tons, high school, Malden, Mass., to New England Structural Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

2200 tons, highway viaduct, Newark, N. J., bids opened Oct. 17.
1700 tons, Crawford avenue bridge, Chicago; steel bids in.
1500 tons, Harriet Hammond McCormick Memorial Y. W. C. A., Dearborn and Oak streets, Chicago, Berlin & Swern, 10 South LaSalle street, architects.
1200 tons, plant for Intertype Co., Harrison, N. Y.; Ballinger Co., engineer.
750 tons, 15-story apartment at Plaza and Union streets, Brooklyn, N. Y.
600 tons, Stanley theater, Hoboken, N. J.; bids asked.
540 tons, 9-story office building, Arthur avenue, New York.
500 tons, apartment at Ninety-third street and Lexington avenue, New York.
500 tons, state normal school, Indiana, Pa.; bids all in.
500 tons, Bear Track dams over Ohio river at Brookport, Ill.; steel bids asked.
400 tons, bridge over DesMoines river, near Des Moines, Iowa; steel bids asked.
400 tons, cafeteria building for Atchison, Topeka & Santa Fe railroad at Topeka, Kans.; steel bids asked.
300 tons, bridge for the Pennsylvania railroad.
250 tons, bus garage, Boston Elevated Railway Co.; plans ready for figures.
250 tons, armory on Sixty-sixth street, New York; Edgewater Construction Co. general contractor.
225 tons, addition to Rockefeller institute, New York; previously noted as involving unstated tonnage.
200 tons, state highway bridge, Peekskill N. Y.; bids asked.
200 tons, bank, Bryn Mawr, Pa.
175 tons, Y. W. C. A. New York; bids asked.
175 tons, building for Norseman Assembly, Brooklyn, N. Y.
150 tons, postoffice, Akron, O.; bids being taken.
150 tons, garage, Middletown, N. Y.
150 tons, hotel, Camden, N. J.
140 tons, Crawford Memorial church, Bronx, N. Y.
125 tons, Catholic church, White Plains, N. Y.
100 tons, Presbyterian church, Mt. Lebanon, Pa.; bids close Oct. 19.
100 tons, warehouse for Kirby Transfer Co., Pittsburgh; bids being taken.
100 tons, shoes for bridge piers, Thirty-first street bridge, Pittsburgh; bids being taken. Superstructure to be bid upon in about two months.
100 tons, high school, Walpole, Mass.; Boubier Brien Construction Co., Woonsocket, general contractor.
Unstated tonnage, ice plant at Great Neck, Long Island, N. Y.; C. Lesley Weir, architect.

Concrete Bars

Market Continues Spotty but Prospects Are Good—Prices Being Readjusted

AWARDING of 1350 tons for a manufacturing plant in New Jersey featured concrete bar contracting of the week. Inquiries are numerous enough to lend encouragement to prospects of better business this quarter. Price schedules are being readjusted to harmonize with the recent alteration in merchant bar levels. Chicago sellers try to keep 2.30c bottom for large tonnages.

REINFORCING BAR PRICES, PAGE 920

Chicago, Oct. 11.—Several billet reinforcing jobs, requiring 1300 to 1500 tons in the aggregate, are to be closed shortly. Several important rail steel projects likewise are on the verge of being placed. Some estimates are that building construction in Chicago this year will exceed the 1926 program in the value of permits. Building permits for this year to date, while totaling less than last year, show an increase of $13,803,000 in value over a year ago. Some of the billet reinforcing bar dealers have difficulty in maintaining the maximum of 2.75c, Chicago, for minimum lots. They are endeavoring to maintain a bottom price of 2.30c for large tonnages. Rail steel bars are quoted at 1.90c to 2.00c.

Boston, Oct. 11.—Little new work is in the concrete bar market. Excavating for the new Cadillac building, Commonwealth avenue, Boston, has begun but the bar contract for 500 tons has not been let. Prices have stiffened but a tendency still exists to shade prices on large tonnages.

New York, Oct. 11.—The market on concrete reinforcing bars for mill shipment now generally is quoted at 1.85c, base, Pittsburgh, and this figure is being held firmly. It is $1 a ton lower than the previous level and results from the recent reduction in the mill price on commercial bars from 1.80c to 1.75c, base, Pittsburgh. The warehouse market on concrete reinforcing bars also has declined $1 here, and now is quoted 2.95c, base, delivered locally out of local stocks. The Youngstown warehouse market now is quoted at 2.30c, base, Youngstown, with occasional exceptions.

Pittsburgh, Oct. 11.—Inquiries continue to develop each week involving concrete bars but awards all are small. The Pittsburgher hotel, however, is being let and this involves 250 tons. Bids closed today on the reservoir for the Northside here taking at least 325 tons. From 1.75c to 1.85c is quoted but according to the bids the minimum is the usual figure considered.

Buffalo, Oct. 11.—Reinforcing bar demand has lost its buoyancy to a large extent. The new price of 2.065c, Buffalo, on mill shipment lots, has brought out no great amount of business. Indications point to the usual seasonal slackening of demand, already a month behind average appearance here.

Cleveland, Oct. 11.—Despite the appearance of two 1200-ton jobs in this territory, the concrete reinforcing bar market continues to lag. Most contracting is being done in 5 and 10-ton lots, and a few of these are attractive to sellers. Prices are firm at 1.75c, Cleveland mill, and 1.75c Pittsburgh for most shipments, and on combination mill and warehouse 2.20c is quoted.

Awards Compared

	Total
Awards this week	2,892
Awards last week	5,880
Awards two weeks ago	7,670
Awards this week in 1926	6,060
Average weekly awards, Sept...	4,871
Average weekly awards, 1927..	5,526
Total awards to date, 1926	265,440
Total awards to date, 1927	223,947

CONTRACTS PLACED

1350 tons, building for American Can Co., Jersey City, N. J. to McClintic-Marshall Co.
800 tons, Evening Post building, Chicago, to Calumet Steel Co., formerly noted awarded unnamed bidder.
400 tons, apartment building at 6700 Crandon avenue, Chicago, to Calumet Steel Co. Quinn & Christiansen, Chicago, architects.
250 tons, Pittsburgher hotel, Pittsburgh, to Carlem Engineering Co.
200 tons, building for DePaul university, Lake street, Chicago, to Calumet Steel Co., formerly noted awarded different fabricator.
150 tons, theater, Providence, R. I., to McClintic-Marshall Co.
150 tons, distribution tunnel for Commonwealth Edison Co., Chicago, to Jones & Laughlin Steel Corp.
137 tons, highway work near Redlands, Calif., to unnamed interest.
125 tons, garage building, Chicago, to Joseph T. Ryerson & Son Inc.
120 tons, Bryn Mawr Beach hotel, Chicago, to American System of Reinforcing.
110 tons, building for Reyam Realty Co., Poughkeepsie, N. Y., to McClintic-Marshall Co.
100 tons, building for Keystone Varnish Co., Brooklyn, N. Y., to Kalman Steel Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

1200 tons, sewage disposal plant, Dayton, O.; bids to be asked later this month.

1200 tons, warehouse for City Ice & Fuel Co., Cleveland; Blone & Sinek, Chicago, in charge of construction.
1000 tons, State of New Jersey elevated highway, Newark, N. J.; revised bids being taken.
325 tons, reservoir, Northside Pittsburgh; bids closed Oct. 11. This inquiry also involves 40,000 square feet of steel mesh.
300 tons, shore relief cut-off Asbury Park, N. J.; bids open Oct. 17.
150 tons, power house for State-Line Generating Co., Hammond, Ind.
150 tons, building for the Standard Plate Glass Co., Northside, Pittsburgh; revised bids being asked.
150 tons, boys' training school, Morganza, Pa.; bids about to be asked.
104 tons, Pollard creek bridge, Lamoine, Calif.; bids in Oct. 24.
100 tons, office building for the Celanese Corp. of America, Cumberland, Md.; bids closed Oct. 4.
100 tons, addition to Mayview hospital, Pittsburgh; bids being taken.
100 tons, administration building, West Liberty state normal school, West Liberty, W. Va.; bids being taken.
100 tons, Standard Plate Glass Co., Pittsburgh; award to be made this week.
100 tons, arena, Post street, San Francisco; bids in.
100 tons, Standard Auto Garage Co., Greensburg, Pa.; Bartholomew & Smith, architects.
100 tons, building for Iron City Electric Co., Pittsburgh; Hunting-Davis-Dunnells, architects; bids to be asked in two weeks.
100 tons, junior high school, Altoona, Pa.; plans to be drawn.
100 tons, additions to Edward B. Langley high school, Pittsburgh; bids about to be asked.
100 tons, office building, Drake Realty Co., Oil City, Pa.; bids close Oct. 14.
100 tons, warehouse for the Kirby Transfer Co., Pittsburgh; bids close Oct. 15.
100 tons, schools, Merchantville, N. J.; bids asked.
Unstated tonnage, passenger and freight station, Baltimore & Ohio railroad, Johnstown, Pa.; bids about to be asked.
Unstated tonnage, hospital at Ellwood City, Pa.; Edward Stotz, Bessemer building, Pittsburgh, architect.
Unstated tonnage, administration buildings for Garfield Park, Chicago; former bids rejected by the West Side park commissioners.

Unfilled Tonnage Drop First Since May

For the first time in three months unfilled bookings of the United States Steel Corp. declined, the total as of Sept. 30 amounting to 3,148,113 tons. This is a reduction of 47,924 tons, or 1.49 per cent. Further comparisons follow:

Date	Total	Change, tonnage	Change, per cent	
Sept. 30, 1927	3,148,113	47,924—	1.49	—
Aug. 31, 1927	3,196,037	54,023+	1.7	+
July 31, 1927	3,142,014	88,768+	2.8	+
June 30, 1927	3,053,246	2,305+	0.075	+
May 31, 1927	3,050,941	405,191—	11.7	—
Apr. 30, 1927	3,456,132	97,008—	2.72	—
Mar. 31, 1927	3,553,140	43,979—	1.22	—
Feb. 28, 1927	3,597,119	203,058—	5.34	—
Jan. 31, 1927	3,800,177	160,792—	4.5	—
Dec. 31, 1926	3,960,969	153,522+	4.1	+
Nov. 30, 1926	3,807,447	123,786+	3.36	+
Oct. 31, 1926	3,683,661	90.152+	2.50	+
Sept. 30, 1926	3,593,509	51,174+	1.42	+
Aug. 31, 1926	3,542 335	60,187—	1.67	—
July 31, 1926	3,602,652	124,010+	3.56	+
June 30, 1926	3,478.642	170,608—	4.41	—
May 31, 1926	3,649,250	218,726—	5.91	—
Apr. 30, 1926	3,867,976	511,959—	13.9	—
Mar. 31, 1926	4,379,935	236,887—	5.13	—
Feb. 28, 1926	4,616 822	265,917—	5.7	—
Jan. 31, 1926	4,882,739	150,625—	3.0	—
Dec. 31, 1925	5,033,364	451,584+	9.8	+
Nov. 30, 1925	4.581,780	472 597+	11.5	+
Oct. 31, 1925	4,109,183	391,886+	9.5	+
Sept. 30, 1925	3,717.297	204.494+	5.8	+
Aug. 31, 1925	3,512 803	26,664—	0.756	—
July 31, 1925	3,539,467	170,991—	4.6	—

The twenty-first annual convention of the Illuminating Engineering society will be held at Edgewater Beach hotel, Chicago, Oct. 11 to 14.

Rails, Cars

Santa Fe Places 121,300 Tons of Rails—Track Fastenings and Equipment Buying Slow

CONTRACTING by the Atchison, Topeka & Santa Fe railroad for 121,300 tons of rails during the past week was the only development of major interest. Track fastenings let in the Chicago district totaled 15,000 tons, and 25,000 to 30,000 tons is on inquiry. Track accessories and rolling stock purchases generally are lagging. A Colombian railroad placed ten locomotives with Baldwin.

RAILROAD TRACK MATERIAL PRICES, PAGE 920

Chicago, Oct. 11.—Estimates are that upwards of 300,000 tons of steel rail inquiry is in the market. About 30 to 35 per cent of the Pennsylvania inquiry went to western mills, and of the Chesapeake & Ohio order for rails it is estimated that 80 per cent will be on the rolling schedules of Chicago mills. Atchison, Topeka & Santa Fe has allocated 121,300 tons of rails during the week for 1928. The distribution awards the Colorado Fuel & Iron Co. 85,000 tons; Illinois Steel Co. 17,000 tons; Inland Steel Co., 17,000 tons; and Bethlehem Steel Co., 2300 tons. Mills report that the recent purchase of rails for 1928 programs will begin to show themselves in next month's rail rolling schedules.

Sales of track fastenings during the week reached a total of slightly more than 15,000 tons, while about 25,000 to 30,000 tons of accessories are on new inquiry. Departments engaged in track fastenings operations still are operating at a light rate, but these operations will be increased slightly due to some emergency orders that are expected to come in shortly on 1927 track programs. Track bolts are quoted at 3 80c and spikes at 2.80c, base, while angle bars continue at 2.75c, Chicago.

New York, Oct. 11.—Dullness still prevails in the eastern car market, both buying and inquiry being slack. A feature of the locomotive market is the placing of ten locomotives by the Farrocarril del Pacifico, United States of Colombia, with the Baldwin Locomotive Works.

Reading Co. this week is distributing its rail tonnages for 1928. A total of around 35,000 tons of rails is expected. Distribution of the New York Central's inquiry for 176,000 tons of steel rails is expected within a few days, approximately 84,000 tons to go to Steel corporation subsidiaries and 75,000 tons to Bethlehem Steel Co.

Pittsburgh, Oct. 11.—Few light rail orders exceed a single carload each. The coal companies order merely as needed for trackage extension although the larger operators occasionally will specify a greater tonnage divided up so that each of several destinies will receive a single carload. All this business is being done at $36 per ton.

Track accessories are no more active than they have been although the Pennsylvania railroad is understood to have divided an order for tie plates, spikes, etc. Chesapeake & Ohio still defers action. Tie plates are quoted at 2.25c, as noted last week and spikes at 2.80c.

CAR ORDERS PLACED

Chicago, South Shore & South Bend, four caboose cars, to the American Car & Foundry Co.
Chicago, Milwaukee & St. Paul, ten steel baggage cars.
Seaboard Air Line, two gasoline-electric rail motor cars and two twirler coaches, to the St. Louis Car Co.
South African railways, 50 fruit cars, to Cie, Centrale de Construction, Belgium.

LOCOMOTIVE ORDERS PLACED

Ferrocarril del Pacifico, Colombia, 10 locomotives to the Baldwin Locomotive Works.

CAR ORDERS PENDING

New Inquiry and Developments on Projects Previously Reported

Chicago, St. Paul, Minneapolis & Omaha, 250 all steel general service cars; bids asked.
Maine Central, two baggage and mail cars.
Pacific Electric, a number of passenger cars, including 10 suburban cars; bids asked.

Exhibits Bring Results

Proof continues to develop that the National Machine Tool Builders' Exposition, held recently in Cleveland, is producing results for the exhibitors. Niagara Machine & Tool Works, Buffalo, is one of the companies reporting considerable interest created in the products which it displayed at the show. This company had in operation several power presses and a power gap squaring shear.

Hyatt Roller Bearing Co., Newark, N. J., reports that the application of its bearings in the machines shown at the exposition has created considerable interest in its products. Numerous companies operated machines at the show equipped with these bearings. The demonstration of the bearings applied to the railroad field also has brought results.

The first blast furnace operated in Pennsylvania was the Colebrookdale stack. It was located about 8 miles north of Pottstown.

Wire

Jobbers Turning Stocks at Better Rate—Prices Hold at Steady Level

WIRE markets show little change. Jobbers and manufacturers alike are buying only current requirements and production is unchanged at about 55 per cent of capacity. Prices are unchanged. Some slackening in agricultural demand has followed rains in the West. Orders are all for prompt shipment, indicating small stocks in all hands.

WIRE PRICES, PAGE 920

Pittsburgh, Oct. 11.—Jobbers are apparently turning over their stocks of wire products faster than for several weeks. Repeat orders are slightly more numerous. Tonnage is lacking, however, orders being reduced to the absolute minimum to keep stocks balanced. Manufacturers' wire demand is slow. All shipments are wanted quickly and the trade is confident that any real improvement in consuming lines will be quickly reflected among producers, who continue to average no higher than 50 or 55 per cent. So far as can be learned here, the market prices are firm, 2.40c on plain wire and $2.55 on wire nails.

Chicago, Oct. 11.—Demand for wire products from jobbers is not gaining much although slight improvement is manifest. Heavy rains in the Middle West during the week caused some disturbance in the outlook for the agricultural districts. Sales of wire fencing are active. The manufacturing trade is buying steadily of wire products but the volume of business is below last year. Operations are around 55 per cent. Western mills are holding to $2.60 for wire nails, and 2.45c for bright plain wire.

Worcester, Oct. 11.—A slight improvement in specifications and orders is noted in the wire market. This includes bright wire, plain and specialties. Prices remain firm and mill operations are around 55 per cent. Buying is close to requirements, especially among utilities. Mill stocks are somewhat lower and are now well balanced.

Detroit, Oct. 11.—Demand for wire from manufacturers is showing a slight gain over September. Prices are firm, with 2.40c, Pittsburgh, base for bright wire. Wire nails are $2.25 to most buyers.

Strip Steel

Makers Seek Basis of Quoting to Satisfy all Users

STRIP PRICES, PAGE 920

Pittsburgh, Oct. 11.—Buying of hot and cold rolled strip steel continues in a limited way but tonnage is lacking. Some larger automotive customers have not made expected expansion in buying as yet, only desultory orders coming in. Other consuming lines maintain a policy of paring down their requirements and stocks as much as possible. Hot strip makers are endeavoring to find a suitable basis for quoting manufacturers who object to preferentials and differentials granted certain users. As a general rule, 2.10c is observed on 6 to 12-inch and 2.30c on less than 6-inch, the hoop and band sizes. The cold strip situation is somewhat clarified since the immediate preferentials have been wiped out and a 3.00c basis made to apply on orders involving three tons or more of a size. The 3.25c base figure applies when orders of one to three tons of a size are involved.

Detroit, Oct. 11.—Sellers of hot rolled strip steel are waiting developments. The current prices hold at 2.10c, Pittsburgh, for 6 to 12-inch, and 2.30c for under 6-inch. The general tendency in the market, however, is for sellers to knock $1 to $2 off hot strip prices in a desperate attempt to book tonnage.

Cold finished strip buyers are more satisfied with the present basis of quoting that material, with 3.25c, Pittsburgh, applying on 1 to 3-ton lots and 3.00c, on 3 tons and over.

Cleveland, Oct. 11.—Hot rolled strip steel demand is picking up slightly, October sales showing a slight gain over those of September. Although prices still hold at 2.10c, Pittsburgh, for 6 to 12-inch, and 2.30c for less than 6-inch, no test has been offered lately. Considerable tonnage still is being shipped against contracts that have been continued into the previous quarter at lower prices. Cold rolled strip is firm at 3.00c, for 3 tons and over and 3.25c, Pittsburgh, for 1 to 3 tons.

Chicago, Oct. 11.—Specifications for hot rolled strip steel, which have been in good volume for some months, reflect to some extent the slackness in automotive buying. Parts makers have been forced to curtail operations to some extent. Little buying of hot rolled strip steel is reported for fourth quarter. Narrower widths are 2.40c to 2.50c, while strip 6 inches and wider is quoted at 2.20c to 2.50c.

The gain in specifications for cold rolled strip steel is slow. On the other hand, the price shows more stability on the basis of 3.00c to 3.25c, Cleveland.

Cold Finished Steel

Forward Buying Needed To Increase Demand and Operations

COLD FINISHED PRICES, PAGE 920

Pittsburgh, Oct. 11.—No material change has come to the cold finished bar market, nor will there be any decided change until forward buying takes place. Many prompt shipment orders are being taken, however, involving limited tonnage, and the aggregate is making October a better month than October, 1926, by 15 to 25 per cent. More tonnage is being diverted to automobile channels and miscellaneous consuming lines are growing slightly more active, the latter business being spread exceedingly thin. The market is quoted at 2.20c, with some preferential tonnage buyers obtaining 2.10c. Operations continue between 50 and 60 per cent.

Bolts, Nuts, Rivets

Fourth Quarter Specifications Fair and Show Some Improvement

NUT AND BOLT PRICES, PAGE 920

Pittsburgh, Oct. 11.—Additional orders have been placed the past week for nuts, bolts and rivets. Some involve single carloads of rivets from railroad shops for car repair purposes. Other rivet users are ordering sparingly as are nut and bolt buyers, incoming business not being sufficient to support operations beyond a 50 per cent average. Specifications against October quotas on fourth quarter contracts so far have been light. Prices are unchanged at 70 off list on nuts and bolts and 2.75c to 3.00c on rivets.

Cleveland, Oct. 11.—Specifications for bolts and nuts show improvement over last month. Rivet sales, however, continue dull, with little business from railroads. Buying by jobbers is particularly light. Contracting for fourth quarter is reported satisfactory. Operations average 60 to 65 per cent.

Chicago, Oct. 11.—While specifications for bolts, nut and rivets continue lighter than was expected for the autumn, fourth quarter contracting has been satisfactory and now is practically completed. Orders from farm implement interests are helping to fill the gap of slackness in buying by other interests. Railroad demand is extremely light. Spot prices are on the basis of 60 to 70 per cent off list for bolts, and 2.85c to 3.10c for large structural rivets.

Chicago Insulated Wire & Mfg. Co., Chicago, has decreased its capital from $100,000 to $1000.

Nonferrous Metals

Buying Has Not Been Especially Large but the Market Undertone Improves With Prices Steady to Strong

Prices of the Week, Cents a Pound

	Copper			Straits Tin							
	Electro delivered	Lake delivered	Casting refinery	New York Spot	New York December	New York Lead	St. Louis Lead East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Oct. 5	13.25	13.32½	12.95	58.62½	58.50	6.25	6.00	6.02½	25.37½	11.00	35.00
Oct. 6	13.25	13.32½	12.95	58.25	58.12½	6.25	6.00	6.02½	25.37½	11.25	35.00
Oct. 7	13.25	13.37½	12.95	58.50	58.25	6.25	6.00	6.02½	25.37½	11.25	35.00
Oct. 10	13.25	13.37½	12.95	58.00	58.00	6.25	6.00	6.07½	25.37½	11.25	35.00
Oct. 11	13.25	13.37½	12.95	57.87½	57.75	6.25	6.00	6.07½	25.37½	11.12½	35.00

NEW YORK, Oct. 11.—The nonferrous metal market outlook is brighter. Prices have been steady to strong the past week. Buying has not been especially large, but the market undertone has improved. Zinc was the most prominent in activity, and with the best business done in some time the price recovered about ⅛ cent.

Buying and inquiries are mostly for October but good interest is noted in early November metal also, while for later positions little interest is shown either by producers or consumers. Mill products have held steady excepting lead sheets and pipe prices on which recently were cut ¼ cent. Brass and copper products are based on 13.25c copper and ingot remains exactly on that figure. With business slow, however, there is much cutting of prices for desirable orders of mill products.

Copper—Since the recovery in the price to 13.25c, Connecticut, a week ago the market has held firmly. Business has been light but producers have been convinced that users will be forced into the market quickly, and therefore are holding. They base this belief on the fact they have sold little metal ahead. Meanwhile demand for shipment on old orders is of such character as to indicate that shipments are going into consumption quickly even though not on as large a scale as at times in the past. Export buying has been a little more active than domestic the past week but the price held unchanged at 13.50c c.i.f. European port. Lake copper has strengthened so that the minimum midwestern price on refined copper is 13.37½c.

Zinc—Sales were of good size during the past week to galvanizers, for October-November shipments. The price stiffened up from 6.00c to 6.10c, East St. Louis. In fact a little business was done slightly under the lower figure one day though it never was generally recognized as representing the market. Ore is firm at $38 a ton.

Zinc statistics for September today showed a slightly stronger statistical position, favoring the selling side of the market.

Tin—Buying by users has been light the past week and prices have fluctuated from day to day but mostly in a slightly easier direction. The situation in the market has not changed in the past week from one of ample supplies and restricted consumption.

Lead—Business is fair from day to day and the market has held remarkably well despite unusually weak prices which have been applying on transactions abroad.

Aluminum—Buying is mostly in small lots for early shipment and the total is not large. Stocks are large but well held and prices appear firm.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Yellow brass (high)	18.25
Copper, hot rolled	22.00
Lead full sheets (cut ¼c more)	9.75
Zinc (100-pound base)	10.00
Aluminum, bright flat, up to 10 gage	34.50
SEAMLESS TUBES	
Yellow brass (high)	23.12½
Copper	24.00
RODS	
Yellow brass (high, free turning)	16.00
Naval brass	18.75
WIRE	
Copper, small lots	15.00
Yellow brass (high)	18.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.75 to 9.00
Chicago	9.25 to 9.50
Cleveland	9.50
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.00
ZINC	
New York	3.75 to 4.00
Cleveland	3.50
HEAVY COPPER AND WIRE	
New York	10.25 to 10.50
Boston	10.50 to 10.75
Chicago	10.00 to 10.50
Cleveland	10.75
RED BRASS BORINGS	
New York	8.00 to 8.25
YELLOW BRASS TUBING	
Cleveland	7.50
LIGHT COPPER	
New York	9.00 to 9.25
Chicago	9.25
Cleveland	9.50
LIGHT BRASS	
Boston	5.25 to 5.50
Chicago	6.25
Cleveland	5.25
ALUMINUM	
Clippings, Cleveland	19.00
Borings, Cleveland	10.00
Cast, Cleveland	14.00
Cast, Boston	13.00 to 13.50

Secondary Metals

Remelt aluminum No. 12	18.50 to 19.50
Brass ingot, 85-5-5-5	12.00

Coke By-Products

Toluol Leads in Demand with Xylol also Active

New York, Oct. 11.—Steadiness again prevails in light oil distillates, with demand showing little variation. Toluol is in heaviest demand, and a fairly good movement is noted in commercial xylol. Benzols, on the other hand, are moving only moderately well, as has been the case of late. However, there is little accumulation of supplies, as production is being diverted into other channels.

Pure and 90 per cent benzols are quoted at 23 cents, works, in tanks and 28 cents in drums; toluol and solvent naphtha at 35 cents, works, in tanks and 40 cents in drums; and phenol at 36 cents in tanks and 31 cents in drums. Phenol is holding at around 19 to 20 cents in large quantities.

Both spot domestic and foreign demand for sulphate of ammonia are listless, with prices on export business purely nominal. The domestic market is only a little better than nominal, holding at $2.25 to $2.35, delivered.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.23	
90 per cent benzol	0.23	
Toluol	0.35	
Solvent naphtha	0.35	
Commercial xylol	0.36	
Phenol	0.19 to 0.20	

Per Pound at Producers' Plants

Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½

Per 100 Pounds Delivered

Sulphate of ammonia	$2.25 to $2.35

Quicksilver Advancing

New York, Oct. 11.—Quicksilver prices are going up rapidly and now are about $127.50 to $130 a flask, or several dollars more than a week ago and $5 to $7 rise in two weeks. It is partly due to business but mostly to firmly held supplies abroad.

Warehouse

Easing of Prices Feared by Jobbers as Mills Lack Ability to Stabilize Markets—Demand in October Gains Over September

WEAKENING prices by mills has made uneasy the position of many warehouses. Although jobbers have made no marked revisions of quotations as yet, the dropping mill levels are expected to have effect soon. Demand has shown but little gain over September, and continues under 1926.

The sheet situation in the New York metropolitan jobbing market is easier, the recent reductions at some of the sheet mills undoubtedly having an effect. The market otherwise appears fairly steady, with business being maintained. Jobbers generally look for an improvement this month over September. Structurals continue in largest demand.

Jobbers in the Pittsburgh area still need business badly. They do not believe that it can be inspired by cutting prices; hence, quotations are being maintained on an even keel for the time being. Intermittent demands for steel utilized in building are encountered and are quickly supplied from stocks. All orders are small, however, making much reordering necessary, with the increased attendant handling costs.

Demand for warehouse products at Detroit continues small. Consumers are buying in limited quantities and orders being received are the smallest at any time since early in the year. While improved conditions are predicted, the outlook remains somewhat uncertain.

Distributors of iron and steel from stock at St. Louis report business more active than heretofore, and the outlook for fall and winter good. With most of the warehouses September sales were disappointing, being under those of August.

In the immediate past purchasing of a wide variety of commodities has been stimulated by the devastating cyclone which struck St. Louis Sept. 29. There is an emergency call from public utilities companies for repair materials and general rehabilitation operations.

Cleveland jobbers are finding October developing little more business than September, and several distributors report a slight decline in tonnage. In a few cases the number of orders is increasing but the quantity per order is less. Prices are holding firm for local delivery. Stiffer competition from Pittsburgh sellers is reported in territory competitive to Cleveland jobbers, but weakness which has developed in such districts as around Canton, Akron, Massillon, has not effected Cleveland quotations. Good weather is aiding demand for building materials.

Jobbing business in the Philadelphia district is somewhat improved compared with September, but is far from good. Unusually low prices have been named in some instances on bars in the past week, but the general market quotations continue unchanged.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Los Angeles	3.40c
New York	3.24c
Philadelphia	2.50c to 3.20c
Pittsburgh	2.85c to 2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

IRON BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York	3.24c
Philadelphia	2.50c to 3.20c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

REINFORCING BARS

Baltimore	2.80c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.00c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.75c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	2.95c
Philadelphia	2.60c to 3.20c
Pittsburgh	2.50c to 2.75c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c

*Carload. **Less carload.

STRUCTURAL SHAPES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Los Angeles	3.40c
New York	3.34c
Philadelphia	2.50c to 3.20c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-inch	3.30c
Ft. Worth	4.50c
Los Angeles	3.40c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.50c to 3.20c
Phila., 3/16-in.	2.70c to 3.40c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

NO. 10 BLUE ANNEALED SHEETS

Baltimore	3.20c to 3.66c
Boston 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Los Angeles	3.85c
New York	3.50c to 3.60c
Portland	4.00c
Philadelphia	3.30c
Pittsburgh	3.30c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

NO. 24 BLACK SHEETS

Baltimore	3.60c to 4.30c
Boston	5.00c
Buffalo	4.30c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.10c
New York	3.90c to 4.00c
Philadelphia	4.35c
Pittsburgh	3.75c
Portland	4.70c
San Francisco	4.80c
Seattle	4.75c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 5.45c
Boston	5.85c
Buffalo	5.15c
Chicago*	4.80c
Cincinnati	4.90c
Cleveland	4.65c
Detroit	4.90c
Ft. Worth	5.75c
Los Angeles	5.30c
New York	4.60c to 4.70c
Philadelphia	5.20c
Pittsburgh	4.60c
Portland	5.45c
San Francisco	5.35c
Seattle	5.50c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

BANDS

Baltimore	3.40c to 4.06c
Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.40c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York	4.49c
Philadelphia	3.65c
Pittsburgh	4.25c to 4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore	4.00c	4.50c
Boston	4.05c	4.55c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500-lb. lots	6.00c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland*	5.95c
Detroit*	6.05c
New York	5.75c to 6.25c
Philadelphia	5.50c

*Net base, straightening, cutting, boxing one ton or more.

SWEDISH IRON AND STEEL
New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

Coast Is Buying Plates

Little Improvement in General Conditions—Pipe Lines Bring Most Demand for Plates

SAN FRANCISCO, Oct. 8.—(*By Air Mail*)—General demand for iron and steel products has shown little improvement but a decided revival of interest in plates is in evidence. This is attributed directly to the inquiry of the Spring Valley Water Co. for a 6500-ton pipe-line, the first large pipe-line project that has come up in over a year.

Pig Iron and Coke

Foundry operations are by no means on a large scale and both sales and inquiries are limited to small lots. One large importer brought in 1300 tons of India iron this week, 500 tons of it being scheduled for Los Angeles delivery, 700 for San Francisco, and 100 tons for Portland. It is understood the same importer is now loading over 1000 tons of the same material for delivery next month. A shipment of over 4000 tons of English beehive and by-product coke has arrived on the Coast, destined as follows: 2000 tons for Los Angeles,, 1500 tons for San Francisco, and 500 tons for Portland. Prices on English beehive coke range from $15 to $16 a net ton, and on by-product from $12 to $13. Pig iron prices are unchanged.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00
*Dutch	24.50

*C.i.f. duty paid.

Bars, Plates and Shapes

Awards of reinforcing material this week aggregated over 450 tons, bringing the total for the year to 44,798 tons, compared with 32,208 tons for the corresponding period last year. Most awards ranged from 20 to 70 tons, only one involving over 100 tons. Pending business is of fair proportions. Few inquiries developed during the week.

Rivet users have been specifying in small lots only, and no large inquiries have been up for some weeks. The Southern Pacific Co., San Francisco, will open bids next week on 50 tons. Prices are firm at 2.75c base, Pittsburgh, or equivalent.

Of major importance in the plate market was the award of 1800 tons of plates for a riveted pipe line at McGill, Nevada, to two eastern producers by the Nevada Consolidated Copper Co. Fabrication of the pipe will be done by the purchaser. This letting involved the largest tonnage placed since the early part of May. Awards this year total 53,069 tons, compared with 55,150 tons for the same period last year. Bids will be opened Oct. 15, for a 54-inch pipe line for the Spring Valley Water Co., calling for 6500 tons of plates. Alternate bids are being taken on riveted, welded, and lock-bar pipe. A penstock project in Los Angeles is pending and will require 400 tons. The trade is interested in prices on the 6500-ton inquiry mentioned above and it is thought that at least 2.30c c.i.f. will come forth. The two leading producers are at present holding to 2.40c.

Most larger structural awards involved Los Angeles projects among which were 600 tons for a church, 200 tons for a power house and 160 tons for a laundry. So far this year 115,792 tons have been booked, compared with 99,084 tons for the corresponding period in 1926. New inquiries all involved small tonnages. Prices are firm at 2.40c, c.i.f.

Other Finished Material

Movement of cast iron pipe involved only two lettings of over 100 tons, the largest calling for 315 tons for El Segundo. The aggregate bookings for the year amount to 63,566 tons, compared with 60,938 tons for the same period last year. Pending business is light. Bids were opened this week on 730 tons for Gladstone, Oreg., and bids will be opened next week on 385 tons for Burlington, Oreg. Prices are still weak, $36 a ton delivered continuing to be the general quotation. The only tubular award called for 485 tons of lap welded pipe, ranging from 3½ to 4½ inches for the Southern Countries Gas Co., and was taken by Jones & Laughlin Steel Corp.

Sheet business reflects the quiet condition noted in the larger eastern markets and consumers continue to buy sparingly. Due to local competition prices are by no means firm at present levels.

Northwest Trade Steady

SEATTLE, Oct. 6.—Seattle building permits in September totaled $2,142,795, $700,000 less than for September 1926, but indicate a substantial volume of construction. Totals for the first nine months of 1927 are $23,143,795 compared with $26,493,900 in the corresponding period of last year. Bank clearings in September were $12,000,000 greater than in September last year.

City of Seattle will receive bids Oct. 28 for the civic auditorium involving about 2000 tons of steel and also will soon erect a $200,000 central fire station.

Bars, Plates and Shapes

Prices are firm and unchanged, plates and shapes at 2.40c and bars at 2.35c. Mill representatives report the market steady and several large projects are expected to be developed shortly. Less disturbance from foreign steel is reported.

Both local steel mills report unchanged operations. Business in reinforcing materials is in small tonnages. Prices on this material continue unsettled. Business pending includes 300 tons for the Seattle Diablo dam and 435 tons for the Kelso grain elevator. Northwest Steel Rolling Mills has contracts for approximately 500 tons for state highway work, Seattle Orthopedic hospital addition, Northwest Portland Cement Co. and for a project in California. Pacific Coast Steel Co. has 425 tons involved in the Exeter apartments and Sacred Heart school, Seattle.

Award of 300 tons of plates for a pipe project at Vancouver, B. C. has been divided among several bidders, according to report. Considerable plate tonnage will be required for water jobs at Port Townsend and Aberdeen, Wash., but they are not yet up for figures. Jobbers report a fair volume of plates being used in general tank and boiler work.

Structural awards total over 1000 tons, as follows: Poole & McGonigle, Kress Building, Portland, 600 tons; Wallace Bridge & Structural Steel Co., Mt. Vernon bridge 160 tons; Isaacson Iron Works, University Christian church, 100 tons. Several projects, involving 300 tons are to be awarded within the next week.

Pipe Is Active

Inquiry for cast iron pipe is reported dull. United States Cast Iron Pipe & Foundry Co. is furnishing 100 tons for the Fifth avenue N. E. extension at Seattle. The same firm is low bidder for 1600 tons for Bellingham, award not yet announced. Tonnages pending include 665 tons for Gladstone, Oreg., and 450 tons for Vancouver, B. C. Burlington, Oreg., is in the market for 18,900 feet of 6-inch cast iron or steel pipe, 30,000 feet of 4-inch and 8000 feet of 2-inch in addition to meters, valves and other accessories. Bids will be opened Oct. 14 by H. L. Gilbert, engineer, Couch building, Portland. Hoquiam, Wash., is considera $50,000 water system extension. British Columbia Pulp & Paper Co., Woodfibre, B. C. will expend $22,000 in enlarging its water system.

Steel scrap is unchanged, local plants paying $10 and $11 gross, according to quality. Cast iron scrap is moving in small lots, at $16, gross.

Better Advertising

Urged in Talk by C. E. Stuart, President, Central Alloy Steel Corp.

Advertising is a most necessary part of industrial development but only can be fruitful when an executive listens with confidence and cooperates with conviction, said C. E. Stuart, president of Central Alloy Steel Corp., Massillon, O., in an address last week before the industrial division of the Cleveland Advertising club. Commenting on the present conditions of industry, Mr. Stuart said: "You hear a good deal about the profiteering purchasing agent, but if you ask me, I feel our merchandising plans have not kept pace with our policy of expansion of production facilities.

"As I review the industrial development through the past years," Mr. Stuart said, "I find a preponderance of thought is given to the methods of manufacture, economies are being striven for constantly and we are endeavoring to expand our markets on volume production as a result of low costs. The industrial executive knows an ever decreasing spread between cost and sales price has reached the place where ingenuity for economies has about run its course and we must look to better methods of merchandising if we are to reap a fair return on the capital invested in industry.

"When the practice and theory of all business is analyzed, the basic principles are the same, but the industrialist has been slow to adopt in his publicity the attractive display that is so liberally indulged in by those companies merchandising automobiles, suction sweepers, refrigerators, kitchen cabinets, etc. The beauty of the product in addition to its utility, is accentuated. Why differentiate, the prospective buyer reacts in the same way to anything he is going to invest his money in.

"In our company, advertising is seriously and fully considered by everyone who should have complete knowledge of our yearly budget and plans. Our appropriation is approximately $350,000 and it is self evident we would be poor executives if we did not supervise carefully this expenditure.

"Successful advertising cannot be a sequence of catchy and 'knock-'em-cold' schemes, but must be based on a well conceived and intelligent plan, the results of which are measured from cumulative benefits derived. No attempt should be made or results expected that are directly traceable to any particular part of the plan, but from the plan as a whole. Advertising appropriations should not be made except on the long-pull basis.

"We know industrial advertising pays, and that the advertising manager, regardless of how clever he may be, cannot be valued or measured for his ability by immediate returns."

Discuss Coke Oven and Furnace Problems

More than 125 members and guests attended the Fall meeting of the Eastern states Blast Furnace and Coke Oven association which was held at the Shannopin country club, Pittsburgh, Oct. 7. Following luncheon, members engaged in a round table discussion of coke oven and blast furnace topics and so much interest was shown at both sessions that future meetings of the association may be conducted along similar lines.

Following dinner, C. A. Meissner, chairman of Blast Furnace, Coke Oven and Open Heath committees, United States Steel Corp. spoke on "Recent Developments in the Manufacture of Coke, Iron and Steel." C. R. Meissner, superintendent coke ovens, Weirton, W. Va., is president of the association and W. A. Haven, superintendent Northern furnaces, Republic Iron & Steel Co., Youngstown, O., is secretary-treasurer.

Gas Association Meets

Chicago, Oct. 11.—Oscar H. Fogg, vice president, Consolidated Gas Co. of New York, New York, today was elected president of the American Gas association which is holding its annual convention here at Hotel Stevens. Bernard J. Mullaney, vice president, Peoples Gas Light & Coke Co., Chicago, was elected vice president and Clifford E. Paige, vice president, Brooklyn Union Gas Co., Brooklyn, N. Y., was re-elected treasurer.

Made Institute Treasurer

New York, Oct. 11.—Karl Eillers of New York has been elected treasurer and director of the American Institute of Mining and Metallurgical Engineers to fill out the unexpected portion of the term of the late Charles F. Rand.

Meet Sheet Competition

(*Concluded from Page* 926)

tinue to run from 15 to 20 per cent under that for the corresponding period of last year. Sales for the past week were light, with no large tonnages reported.

Philadelphia, Oct. 11.—Shading of sheet prices is more noticeable, attractive business generally bringing reductions of $2 or more. Black sheets are available at 2.90c, Pittsburgh; galvanized 3.75c and blue annealed 2.15c.

Cleveland, Oct. 11.—A general weakness is evident in the sheet market. Black sheets, although still quoted at 3.00c, Pittsburgh, by leading makers, is admittedly weak, and several barrel buyers have refused to take out tonnage at 2.90c, thinking further concessions may develop. Blue annealed sheets, which have been at 2.15c, Pittsburgh, for sizes competitive with continuous sheets, now are quoted 2.10c, for attractive lots, although 2.25c is the open market of the larger companies. Autobody is openly 4.15c, although several mill representatives in this district have not been advised to lower their quotations from 4.25c. Metal furniture stock continues 4.15c, Pittsburgh. Galvanized has felt the decline, and is quoted 3.75c to 3.85c, Pittsburgh.

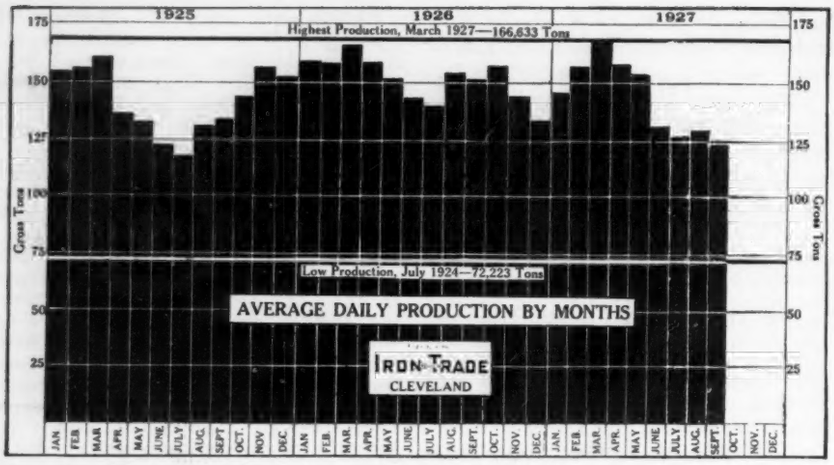
Chicago Pig Iron Lower

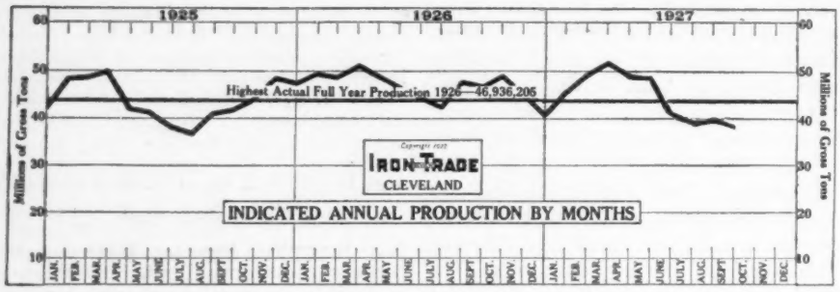
(*Concluded from Page* 921)

ing the past two or three weeks, business continues light. Purchasing is mainly in small quantities for immediate requirements. Sales reported during the week total about 7500 tons, of which the St. Louis Gas & Coke Corp. booked 6800 tons. Nearby Illinois stove and furnace manufacturers were the most active purchasers. About 450 tons of southern iron was sold. Prices, while exhibiting a slightly easier trend, are quotably unchanged. The leading local producer is asking $18.50 to $20 per ton, f.o.b. Granite City, and southern iron is $17.25, base, Birmingham.

Birmingham, Ala., Oct. 11.—The pig iron output is being sold by furnace interests in this district for delivery within two to three weeks. Quotations are held firmly at $17.25, base. Sales were numerous on the turn of the quarter. Ten blast furnaces are producing foundry iron, seven basic, one ferromanganese and one a special brand. One thousand tons of Minnesota iron ore is being brought to this district daily. The Louisville & Nashville railroad has purchased 300 tons iron in this district.

Philadelphia, Oct. 11.—The pig iron market is more active here. One pipemaker is negotiating for around 10,000 tons; another for around 5000 tons. A Virginia furnace sold 13,000 to 14,000 tons in the past week, most of it to Virginia pipemakers. Foundry iron orders in this district are more numerous, although individual order tonnages are small. The eastern Pennsylvania foundry market is quotable at $19.25 to $20, base, furnace, while occasionally somewhat lower is done where higher freight rates or special circumstances are involved. It is expected a fair tonnage of low phosphorus iron will be placed in the coming week. The Thomas Iron Co. has banked its Hokendauqua furnace.





September Steel Ingots Drop

DESPITE the fact that production of steel ingots in August was slightly better than in July, a setback was suffered in September and the output rate shrunk to the lowest since July 1925. According to statistics compiled by the American Iron and Steel institute from figures reported by companies which in 1926 made 95.01 per cent of the country's total steel ingot production, the output for September was 3,232,108 gross tons. As compared with the 3,470,903 tons made in August, this was a loss of 238,795 tons. September, however, had only 26 working days, against 27 in August.

Average daily production in September was 124,312 tons, which compared with the 128,552-ton rate of the previous month, was a drop of 4240 tons, or 3.3 per cent. One year ago, production was at a rate of 150,515 tons per day. With an output of 124,312 tons per day in September and 311 working days in the year, the indicated annual rate of production was 38,660,000 tons. For August the rate was 39,980,000 tons and for July, 39,540,000 tons. According to the institute's calculations, operations in September were at a rate of 76.56 per cent, as compared with 79.17 per cent in August and 78.29 per cent in July.

The percentage of operation figures of the institute now are based on a practical capacity of 50,500,000 gross tons of open-hearth and bessemer steel ingots as of Dec. 31, 1926, and for last year a capacity of all ingots of 50,000,000 tons as of Dec. 31, 1925. In June all figures for the current year were revised, inasmuch as it has not been found feasible to obtain monthly figures from a sufficient proportion of producers of crucible and electric ingots to represent fairly the production of ingots by those processes.

Ingots made during the first nine months of this year totaled 33,499,794 gross tons, as compared with 35,689,151 tons in the corresponding period last year. Average daily production for 1927 has been 143,776 tons, against 153,172 tons in 1926 and operations have averaged 88.54 per cent against 95.27 per cent.

Steel Ingot Production—1926-27

95.01 Per Cent of Industry Reporting
Gross Tons

1926	Open-hearth	Bessemer	All other	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,326,846	581,683	13,664	3,922,193	4,132,210	26	158,931	98.86
Feb.	3,023,829	556,031	12,818	3,592,678	3,785,051	24	157,710	98.10
March	3,590,791	635,680	15,031	4,241,502	4,468,617	27	165,504	102.94
April	3,282,435	601,037	13,652	3,897,124	4,105,799	26	157,915	98.22
May	3,201,230	516,676	10,437	3,728,343	3,927,979	26	151,076	93.97
June	3,036,162	498,764	9,441	3,544,367	3,734,153	26	143,621	89.33
July	2,911,375	526,500	12,372	3,450,247	3,634,993	26	139,807	86.96
Aug.	3,145,055	627,273	12,003	3,784,331	3,986,966	26	153,345	95.38
Sept.	3,089,240	612,588	12,660	3,714,488	3,913,383	26	150,515	93.62
Total 9 mos.	28,606,963	5,156,232	112,078	33,875,273	35,689,151	233	153,172	95.27
Oct.	3,224,584	630,526	12,348	3,867,458	4,074,544	26	156,713	97.48
Nov.	2,915,558	592,239	9,605	3,517,402	3,705,744	26	142,529	88.65
Dec.	2,788,479	493,172	8,919	3,290,570	3,466,766	26	133,337	82.94
Total	37,535,584	6,872,169	142,950	44,550,703	46,936,205	311	150,920	93.87

95.40 PER CENT OF INDUSTRY REPORTING

1927								
Jan.	3,041,233	545,690	.....	3,586,923	3,759,877	26	144,611	89.06
Feb.	3,042,232	565,201	.....	3,607,433	3,781,376	24	157,557	97.03
March	3,701,418	590,716	.....	4,292,134	4,499,092	27	166,633	102.62
April	3,340,852	565,634	.....	3,906,486	4,094,849	26	157,494	96.99
May	3,272,810	557,683	.....	3,830,493	4,015,192	26	154,430	95.10
June	2,822,477	486,047	.....	3,308,524	3,468,055	26	133,387	82.15
July	2,595,692	436,446	.....	3,032,138	3,178,342	25	127,134	78.29
August	2,805,657	505,584	.....	3,311,241	3,470,903	27	128,552	79.17
Sept.	2,611,976	471,455	.....	3,083,431	3,232,108	26	124,312	76.56
Total 9 mos.	27,234,347	4,724,456	.....	31,958,803	33,499,794	233	143,776	88.54

Figures for 1927 exclude crucible and electric ingots. It has not been found feasible to secure monthly figures from a sufficient proportion of producers to represent fairly the production of steel ingots by these processes.

Enameled Ware Sales Up

Washington, Oct. 11.—Shipments of enameled ware in August gained, totaling 330,746 dozens, compared with 248,893 dozens in July and 292,353 dozens in June, according to the department of commerce figures. Further comparisons follow:

In dozens

1927	Total	White	Grey	Colored
January	350,748	197,278	140,267	13,203
February	372,452	202,633	150,634	19,185
*March	440,671	240,867	172,673	27,131
April	337,181	175,187	143,257	18,737
May	318,071	158,058	140,210	19,803
June	292,358	142,314	135,027	15,017
July	248,893	122,048	113,401	13,444
August	330,746	177,675	134,737	18,334
Tot. 8 mos.	2,691,120	1,416,060	1,130,598	144,854

*Revised.

Freight cars in need of repair on Sept. 1 totaled 141,038 or 6.2 per cent of the number in use, a decrease of 7308 cars from the number reported Aug. 15.

Scots Host to Steel Institute; World Well Represented

HISTORICAL associations with the iron and steel industries was the theme of John Craig's address of welcome to members of the British Iron and Steel Institute who held their autumn meeting in Glasgow, Sept. 20 to 23, at the invitation of the West of Scotland Iron and Steel Institute, of which Mr. Craig is president. Some of the earliest and greatest developments in iron and steel manufacture have been made in the district. The west of Scotland still is an active community so far as the iron and steel trades are concerned, although these are experiencing great difficulties at present. Notwithstanding these difficulties the works are keeping their places as units in the metallurgical world.

Fourth Meeting in Glasgow

The meeting was held in the Royal Technical College. About 300 members of the Institute were present, including representatives from the United States, Japan, France, Belgium, Germany, Spain and Poland. The sessions were opened by the Lord Provost of Glasgow, the president of the Glasgow Chamber of Commerce, and Mr. Craig. Frank W. Harbord, president of the Iron and Steel Institute, replying to the addresses of welcome, said that it was the fourth time that the Institute had held a meeting in Glasgow, the last visit being 26 years ago. Glasgow, with its neighboring furnaces and steel plants, is one of the great industrial centers of the world, and the Clyde is pre-eminent for its shipbuilding. The Glasgow district consumes more iron and steel products than any other part of the country.

The Carnegie gold medals, which were presented by the president before the reading of the papers, were won by J. H. Whiteley, Saltburn-by-the-Sea, for his research on "The Eggertz Test for Combined Carbon in Steel" (1917); Frank Bainbridge, Skinningrove, for his research on "The Effect of Fluorspar Conditions on the Phosphates in Basic Slag" (1920); and A. L. Curtis, Chatteris, (Camb.), for his research on "Steel Moulding Sands and their Behavior Under High Temperatures" (1925).

During the meeting visits were paid to a number of works in the vicinity of Glasgow, including that of David Colville & Sons, Ltd., the sheet mills of Frederick Braby & Co., Ltd., the rolling mills of the Steel Company of Scotland, Ltd., Babcock & Wilcox, Ltd., William Beardmore & Co., Ltd., Stewarts & Lloyds, Ltd., Glasgow Iron & Steel Co., Ltd., the sheet mills of Smith & McLean, Ltd., Mavor & Coulson, Ltd., manufacturers of coal-cutting machinery, the Scottish Iron & Steel Co., Ltd., the wire mills of William Bain & Co., Ltd., The Scottish Tube Co., Ltd., and the iron and steel foundry of R. B. Tennent, Ltd. There were several social functions, including a civic reception by the Lord Provost and the corporation of Glasgow, a dinner and a supper-dance. Friday, Sept. 23, an all-day excursion was arranged on the Firth of Clyde.

Fifteen papers were presented. C. S. Gill of the Consett Iron Co., Ltd., contributed a paper on "The Effect of Varying Ash in the Coke on Blast Furnace Working." Fluctuating ash in coke is one of the evils in blast furnace operations. The author gives a table showing the effects of the ash on the sulphur contents in the iron. The figures were obtained in practice with ore mixtures, type of iron produced, stove temperatures, etc., maintained as nearly constant as possible. The effect of consistent ash then is shown by comparison of two kinds of coke supplied to the whole of the blast furnace plant during two periods of five weeks.

Drying of Blast Air

Edwin H. Lewis of the Glasgow Iron & Steel Co., Ltd., Wishaw, described in "The Use of Silica Gel as a Medium for Drying Blast," a plant used in the Wishaw works, which treats 35,000 cubic feet of air per minute from which the moisture is absorbed by silica gel, which now is made in large quantities and of uniform quality. A table shows the results obtained since the plant has been in operation. Minor adjustments still are to be made to the plant, which is the first of its kind ever built and which is run at a comparatively small cost. In a paper entitled "On the Theory of the Blast Furnace Process," Professor Dr. Fritz Wust of Dusseldorf, Germany, expounds a theory according to which the reduction of manganese oxide, silica and phosphoric acid does not take place in the blast furnace bosh but is effected above the tuyere level. The author arrived at his conclusions by analyses of washed iron from five charcoal furnaces and one coke furnace, and by tests with silica, phosphoric acid and manganous oxide reduced with elementary carbon in the presence of iron.

The present use of induction heating in the steel industry was reviewed by D. F. Campbell, London, in "High-Frequency Induction Melting," particular attention being given to the Ajax-Northrup high-frequency furnace. A paper was contributed from the United States by Theodore W. Robinson, vice president of the Illinois Steel Co., Chicago, who chose for his subject "The Economic and Social Development of the American Iron and Steel Industry," which is presented in abstract on page 899 of this issue.

New Impact Test Machine

A new testing machine for repeated impact tests was described by F. V. Warnock, Belfast, in his paper entitled "A Testing Machine for Repeated Impact, and a Preliminary Investigation on the Effects of Repeated Impact on Lowmoor Iron." The testing machine is devised to eliminate parasite stresses as far as is possible. A specially shaped test piece is screwed into a tup which falls onto a cast iron anvil. The machine can be adjusted to deliver a blow of chosen energy of impact, and the specimen can be placed in the machine without initial stress. A complete set of investigations were made with this apparatus on specimens of Lowmoor iron of uniform quality. The author gives the results of these investigations from repeated impact tests and single-shock tests. Kotaro Honda and Kinnoske Takahasi, Japan, contributed a paper entitled "On the Quantitative Measurement of the Cutting Power of Cutlery." The authors have constructed a new tester in which the cutting edge of the implement is brought into contact, under a definite pressure, with a narrow band composed of sheets of paper about an inch thick, and a definite amount of forward and backward motion is given to the implement. The number of sheets cut during this motion is taken as a measure of the sharpness of the implement. A logarithmic relation

was found between the sharpness and the number of repeated cuttings. It was found that in the case of carbon steels containing different amounts of carbon a 1.3 per cent carbon blade gave the best results. An addition of 1 per cent of chromium or tungsten, or of 0.5 per cent of molybdenum, to carbon steel considerably increases both the sharpness and the life of the blades.

Professor C. A. Edwards and Professor K. Kuwada, University College, Swansea, presented a paper entitled "The Influence of Cold-Rolling and Subsequent Annealing on the Hardness of Mild Steel." Experiments were made on low-carbon steel sheets 2 x 3 feet and approximately 1.3 millimeters thick. The authors arrive at the following general conclusions: The temperature at which the hardening effects of cold work begin to be removed is lowered as the degree of cold work increases, and the rate at which the hardness is decreased per unit of temperature also rapidly increases with the amount of cold work. There is a decided tendency for the hardness of cold-worked steel to increase somewhat by annealing at, say, 500 degrees Cent. The most effective range of temperature for removing the effects of cold work lies somewhere between 550 and 650 degrees Cent., but this range becomes rather lower as the degree of cold work becomes greater.

"The Work-Hardening of Steel by Abrasion" was the title of a paper presented by Edward G. Herbert, Manchester. Among other conclusions, the author states that in articles of metal which are subjected to severe abrasion in service, such as locomotive tires or gears for automobiles, a surface layer is produced, the hardness of which is much greater than that of the original metal. The degree of hardness induced by wear tends to a maximum which varies greatly in different metals and in different classes of the same metal. The capacity of a metal to resist wear, insofar as it depends on hardness, must depend on the hardness induced by wear and not on the original hardness. The original hardness of a metal gives no indication of the ultimate hardness of the worn surface.

Following certain investigations into the cracking of mild steel exposed to elevated temperatures, particularly the cracking of steel boiler plates, Dr. W. Rosenhein and Dr. D. Hanson, of the National Physical Laboratory, Teddington, made experiments, the results of which are given in their paper "The Behavior of Mild Steel Under Prolonged Stress at 300 Degrees Cent." The experiments show that samples of mild steel, subjected to various forms of heat treatment, are capable of withstanding severe stresses up to two-thirds of the normal breaking stress, for prolonged periods at 300 degrees Cent. In the tests mentioned the stresses have been withstood for over five years, and it seems likely that the steel will withstand such stresses indefinitely. A paper by Arthur B. Everest, T. Henry Turner and Professor D. Hanson, Birmingham, was entitled "The Influence of Nickel and Silicon on an Iron-Carbon Alloy." Investigations were made over ranges of nickel between 0 and 40 per cent, and of silicon between 0 and 3.6 per cent. Small additions of nickel rendered a white and unsound iron, first sound, then gray; the production of a given degree of graphitization required about four times as much nickel as silicon. Nickel, therefore, reduced the tendency of the iron to chill. Above 5 per cent of nickel the alloys became hard and unmachinable; this condition persisted to about 18 per cent of nickel. Beyond 20 per cent of nickel the alloys remained soft but became increasingly magnetic. Annealing at the proper temperature rendered most of the unmachinable alloys machinable. Tests on the resistance of the alloys to corrosion in sulphuric acid showed that with small additions of nickel the alloys were more rapidly corroded than an ordinary cast iron. High additions of nickel, however, resulted in great resistance to corrosion, the investigation showed.

Other papers submitted to the meeting were: "Magnetic and Other Changes Concerned in the Temper-Brittleness of Nickel-Chromium Steels," by H. A. Dickie, Glasgow; "The Constitution of Silicon-Carbon-Iron Alloys and a New Theory of the Cast Irons," by Professor D. Hanson, Birmingham; "On the Mechanism of the Tempering of Steels," by Tokujiro Matsushita and Kiyoshi Nagasawa, Japan; "The Solution of Cementite in Alpha Iron and Its Precipitation," by J. H. Whiteley, Saltburn-by-the-Sea.

Franco-German Agreement Gives Trade Basis

LONDON, Sept. 28.—(*European Staff Service*)—Following the Franco-German commercial agreement and the preparation of a new tariff by the French authorities, the accompanying table shows a comparison of French duties on certain classes of iron and steel products. The dollar duties are taken at the current rate of exchange of 3.92c to the franc.

Negotiations concerning the agreement were based on the fact that the present French tariff does not correspond to the conditions brought about by the increase in the index of wholesale prices since the appreciation of the franc. The present duties exist under two headings, one the general tariff, or maximum duties, the other the minimum tariff. A new tariff is being prepared by the French authorities, and the tariff committee of the chamber of deputies presented a complete scheme which was, however, rejected. Until a definite tariff has been made legal in France there can be no commercial treaty between France and other countries, and only provisional agreements can be made.

Several such agreements were made between France and Germany, but at the expiration of the last one June 30 the Germans refused to negotiate on provisional grounds and insisted that any agreement should be made on a basis which could be used for a permanent treaty when the new French tariff was enforced. Finally an agreement was signed in the last days of August, to take effect from Sept. 6 this year to Dec. 15, 1928.

It will be seen that the various products come under several headings, of which the three shown on the accompanying table are the most important. From these tables, only iron and steel products have been extracted. Table I includes goods which Germany can introduce into France at the present minimum tariff; it contains principally electric bulbs, metalworking machinery and automobiles. Table II includes goods on which a new tariff is imposed. These duties are fixed by the French government by decree; they are higher than the present minimum tariff but less than the general tariff. They are generally lower than the minimum tariff recommended by the tariff committee for the new tariff act and will probably be adopted definitely. This table contains certain metal products, clockwork, steam engines, printing and agricultural machinery, telephone and telegraph apparatus, chemicals. This table is the most important.

Table III includes goods on which

an intermediate tariff between the present minimum and general tariff is applied. It contains special steels, tin, refractory goods. Dec. 15, 1928, all German goods will enter France under the minimum tariff, and France then will be granted the treatment of the most favored nation, providing the new French tariff is passed. Should the index of wholesale prices in France vary by 20 per cent from that prevailing in July this year, the duties would be modified accordingly. All French iron and steel products entering Germany receive the treatment of the most favored nation.

New orders for steel boilers in August totaled 1512, compared with 1516 boilers in July, according to reports of 72 manufacturers to the department of commerce.

Bronze Token To Ropsy

At the closing session of the foundry convention in Paris Sept. 10, Paul Ropsy, president of the international committee of foundry associations and president of the Association Technique de Fonderie de Belgique, was presented a work of art in bronze in recognition of the valuable services he has rendered the foundry associations in connection with the formation of the international committee, of which he is the first president.

Further proof of the appreciation of M. Ropsy's work was afforded by the cheers which greeted him whenever he rose to speak. In thanking the congress for their gift M. Ropsy said that he had much enjoyed undertaking his duties as president of the international committee and that when he is succeeded next year by Dr. Werner he will not cease to follow with the greatest interest and sympathy the activities of this organization.

Drawback Is Allowed

Washington, Oct. 11.—The treasury department has announced allowance of a drawback on ferromanganese manufactured by the Lavino Furnace Co. Philadelphia, to its plants at Marietta and Sheridan, Pa., with the use of imported manganese ore.

Freight cars in need of repair Oct. 15 totaled 141,911 or 6.2 per cent of the number on line, an increase of 873 cars over Sept. 1, when 141,038 or 6.2 per cent need repairs. It was a decrease of 18,586 cars compared with the same date last year.

Provisions of Franco-German Trade Agreement

No. of nomenclature	Products	Present minimum tariff	Present tariff for U. S. A.	Projected minimum tariff of the Tariff Committee	Tariff on German products
		(Francs and dollars per metric ton)			
		TABLE I			
564	Wire nails, weighing less than 5 kilograms per hundred	from 200 gr. to 5 Kg. 826 ($32.20)	1121 ($43.80)	700 ($27.35)	826 ($32.20)
		less than 200 gr. 1770 ($69.10)	2360 ($92.00)	1500 ($58.60)	1770 ($69.10)
		TABLE II			
Ex 210	Sheets in steel containing more than 0 5 per cent silicon, not sheared	more than 1 millim 287 ($11.20)	430.50 ($17.00)		
		6/10 to 1 millim. 369 ($14.40)	553.50 ($21.60)	from 0.5 to 3 per cent Si. 500 ($19.55)	
		4/10 to 6/10 millim. 410 ($16.00)	615 ($24.00)		550 ($21.50)
		less than 4/10 millim. 451 ($17.60)	676.50 ($26.45)	more than 3 per cent Si. 700 ($27.40)	
		TABLE III			
207 ter	Tool steel	660 ($25.80)	990 ($38.85)	900 ($35.25)	990 ($38.85)
207 quater	Special steels containing: at least 0.5 per cent Ni. from 0.5 to 6 per cent Cr. from 0.5 to 6 per cent W. from 0.2 to 2 per cent Mo. from 0.1 to 0.5 per cent Vd. from 0.1 to 0.5 per cent Ti.	585 ($23.00)	877.50 ($34.45)	900 ($35.25)	877.50 ($34.45)
Ex 210	Polished sheets			not sheared	533 ($19.95)
	thicker than 1 millim.	369 ($14.45)	533 ($19.95)	over 30/10 mm., 270 ($10.60)	697 ($27.30)
	from 6/10 to 1 millim.	451 ($17.65)	697 ($27.30)	from 16/10 to 30/10 mm. 330 ($12.90)	738 ($28.90)
	from 4/10 to 6/10 millim.	492 ($19.30)	738 ($28.90)	from 9/10 to 15/10 mm. 390 ($15.25)	820 ($32.10)
	less than 4/10 millim.	533 ($19.95)	820 ($32.10)	from 5/10 to 8/10 mm. 465 ($18.20)	
				less than 4/10 mm. 540 ($21.15)	
				automobile sheets 18 per cent ad val.	
	Cold rolled sheets, blued				
	1 millim. and over	513 ($20.15)	740 ($29.00)		740 ($29.00)
	from 6/10 to 1 millim.	555 ($21.75)	851 ($33.45)	same as the above	851 ($33.45)
	from 4/10 to 6/10 millim.	592 ($23.25)	888 ($34.80)		888 ($34.80)
	less than 4/10 millim.	692 ($24.60)	962 ($37.75)		962 ($37.75)
	Ordinary sheets remain at the maximum tariff as follows:				
	over 1 millim.	672 ($26.40)			
	from 6/10 to 1 millim.	864 ($33.90)			
	from 4/10 to 6/10 millim.	960 ($37.55)			
	4/10 millim. and under	1056 ($41.25)			
	Tinplates, coppered plates, terne plates, roofing plates			520 ($20.40)	714 ($28.00)
	over 6/10 millim.	612 ($24.00)	714 ($28.00)	570 ($22.35)	765 ($30.00)
	6/10 millim. and under	663 ($26.00)	765 ($30).00		

Industrial Men in the Day's News

Samuel B. Sheldon, New President of the Minnesota Steel Co.

MANY years of experience in the steel industry have been passed by him since joining the Illinois Steel Co. in 1889 *as a chemist.*

MOST of his career has been devoted to the production phases of the industry and considerable mill capacity has been constructed under his supervision.

SUCH little time as he takes for recreation usually finds him in the outdoor sports, either in hunting or fishing. Living in Duluth, he has available readily a territory conducive to such pursuits.

SAMUEL BERTRAM SHELDON, newly elected president of the Minnesota Steel Co., Duluth, subsidiary of the United States Steel Corp., for many years has been a well known figure in the steel industry. His most notable achievements have taken the form of creating new steel capacity. He contributed in the construction of about 90 per cent of the original Lackawanna Steel Co. plant at Buffalo, and under his direction about 80 per cent of the present plant of the Minnesota Steel Co. has been built.

Mr. Sheldon has invented numerous devices, including an automatic gas producer which is manufactured for the market. He also developed a continuous process for the manufacture of by-product coke.

Born at Manchester-by-the-sea in Massachusetts in 1868, Mr. Sheldon was educated in the public schools there. Later he went to the Massachusetts Institute of Technology, Cambridge, Mass., from which he was graduated as a chemist in 1889. To help pay his college expenses he engaged in various kinds of work in his spare time, and during his vacations was a locomotive fireman or worked in machine shops. In 1889, after being graduated from college, he began his connection, since uninterrupted, with the steel industry. In 1889 he became a chemist at the Milwaukee plant of the Illinois Steel Co., Chicago. In 1890 he went to Cleveland as chief chemist for the Otis Steel Co. and next became a steel blower in this plant. Subsequently he was appointed superintendent of the converter department. In 1891 he was transferred as superintendent of the open-hearth department. The following year he became superintendent of both the converter and open-hearth departments.

In 1899 Mr. Sheldon went to the Joliet works of the Illinois Steel Co. as assistant to the general superintendent, and in 1901 became general superintendent. It was in 1903 that he became general superintendent of the Lackawanna Steel Co., which then was beginning the construction of its plant at Buffalo, and practically all of this plant was built during his incumbency. He left the Lackawanna Steel Co. in 1909 and went to Bethlehem, Pa., where he did some special work for the Bethlehem Steel Co. The following year he established a general consulting business, with headquarters at Bethlehem. In 1913 he was appointed general superintendent of the Minnesota Steel Co., with which interest he has been associated since. In 1920 Mr. Sheldon was elected vice president and general manager of the Minnesota Steel Co., succeeding George L. Reis who retired at that time. In being elected president of the Minnesota Steel Co., Mr. Sheldon succeeds the late Elbert H. Gary, who had occupied the presidency since the organization of that interest by the United States Steel Corp.

Mr. Sheldon makes his residence at Duluth. He is known as a hard worker, and such little time as he devotes to recreation generally is spent in hunting or fishing.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

JOHN A. TOPPING, chairman of the board of directors of the Republic Iron & Steel Co., Youngstown, O., will be chairman of the committee of the iron and steel group of the 1927 Red Cross roll call in New York.

F. L. Ward, treasurer of the Babcock & Wilcox Co. heads the boilers, engines and machinery group; Charles Hayden of the Hayden-Stone Co. is head of the mining, smelting, pig iron and brass group, to be assisted by E. N. Skinner. Samuel B. Donnelly, secretary of the Allied Building Metals association, heads the bronze and allied metal industry group.

* * *

Henry Hueber, president, Hueber Ship Supply Co., Philadelphia, has sailed for a trip to France and Italy.

* * *

Peter P. Carney has resigned as promotion manager, Remington Arms Co., Fond du Lac, Wis.

* * *

J. Y. Powell has been elected president of the Pennsylvania Shipyards Inc., Beaumont, Tex.

* * *

G. H. Fobian has been appointed sales manager of the Oilgear Co., Milwaukee, manufacturer of hydraulic machinery.

* * *

Frank A. Headson, general superintendent of the Johns-Manville Inc. plant at Waukegan, Ill., has resigned. P. J. Kottcamp, plant superintendent, will succeed him.

* * *

H. C. Overman, formerly manager of Warner Steel Products Co., Chicago Heights, Ill., has resigned to accept a position as a department manager with Sears, Roebuck & Co., Chicago.

* * *

Stewart M. Bunting, for 25 years associated with Niles-Bement-Pond Co., New York, has opened an office at 111 Broadway, that city, to conduct a business in machine tools and allied equipment.

* * *

George W. Quickle, whose appointment as purchasing agent of Raymond Bros. Impact Pulverizer Co., Chicago, was announced in IRON TRADE REVIEW issue of Sept. 29, is no longer with that company.

* * *

Frederick Deutsch, called "The Thomas Edison of Germany," arrived in the United States recently, with the intenton of studying American electrical establishments and policies. Dr. Deutsch is the head of the German Electric Co.

* * *

William Rabe, formerly with the Omaha branch of the Rock Island Plow Co., Rock Island, Ill., has been made sales manager of the Rock Island Implement Co., Kansas City. He has been connected with the implement industry for the past 20 years.

* * *

Walter C. Hemmingway has been elected vice president and general manager, Federal Shipbuilding & Dry Dock Co., Kearny, N. J., succeeding L. H. Korndorff, elected president, as announced in IRON TRADE REVIEW, issue of Sept. 29. Mr. Hemmingway had been assistant to the vice president and general manager, since 1919.

* * *

F. Hal Higgins, formerly in charge of the research bureau, National Association of Farm Equipment Manufacturers, has resigned that position to take up sales promotion work with the Caterpillar Tractor Co., San Leandro, Calif., and Peoria, Ill. F. A. Lyman, his assistant with the Equipment association, will succeed him.

* * *

R. S. Kerns, formerly in charge of the metallurgical research and instructor in metallurgy, Pennsylvania State college, State College, Pa., is now district sales engineer for the Acheson Graphite Co., Niagara Falls, N. Y. Mr. Kerns began his foundry career in the South Altoona, Pa., foundries of the Pennsylvania railroad and later was a helper on a 100-ton open hearth furnace at the Cambria Steel Co., Johnstown, Pa.

* * *

George W. Ranger, works manager of the Fairmont Mining Machinery Co., Fairmont, W. Va., has resigned to become general manager of the Pulaski Foundry & Mfg. Co. and the Pulaski Engineering Works Inc., both at Pulaski, Va., makers of machinery and fabricators of heavy plate and structural steel.

H. G. Bonham, since 1924 associated with the Mathieson Alkali Works, returns to the Pulaski Foundry company as works manager, succeeding W. E. Ring.

* * *

J. R. Matlack, formerly treasurer of S. F. Bowser & Co., Fort Wayne, Ind., manufacturer of pumps, has been made treasurer and general manager of the S. F. Bowser & Co. Ltd., Toronto, Ont., Canada. E. D. Egglman, secretary of the company will succeed Mr. Matlack as treasurer, remaining also as secretary. Mr. Matlack entered the employ of the Bowser company as a stenographer in 1907, and after being in various departments, was for a time assistant manager of the Chicago sales office. He was named executive assistant of the plant in 1919, and in 1926 was made treasurer.

* * *

Walter Sennhauser, formerly mechanical engineer, Sulzer Bros. Ltd., Winterthur, Switzerland, has been made chief engineer of the Dry Quenching Eqiupment Corp., a new subsidiary of the International Combustion Corp., New York.

* * *

William L. Ward, president of the Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., for a quarter of a century important manufacturer of nuts and bolts, has been re-elected chairman of the Westchester county republican committee. Mr. Ward thus has entered upon the thirty-second year as head of the Westchester republican organization.

* * *

Charles N. Pittenger, chief engineer, G. C. Kuhlman Car Co., Cleveland, maker of street cars, has been transferred to the sales department. He has been associated with the electric railway industry for 25 years, starting as a boy in the shops of the Steubenville, East Liverpool & Beaver Valley Traction Co. He ultimately became superintendent of that company. For a number of years, Mr.

Pittenger served as master mechanic of the Eastern Ohio Traction Co., Cleveland, and prior to joining the Kuhlman company, he was in the railway department of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

* * *

E. K. Kennedy has been appointed assistant general manager of sales, Trumbull Steel Co., Warren, O.

* * *

J. A. Lannigan has been made works manager of the two plants of the Valley Mould & Iron Corp. at Sharpsville, Pa. and Hubbard, O.

* * *

Charles E. Shearer, for several years advertising manager, Industrial Works, Bay City, Mich., has resigned, effective Oct. 20.

* * *

A. J. Maloney has been elected president of the Philadelphia & Reading Coal & Iron Co., Philadelphia, succeeding W. J. Richards.

* * *

Thomas H. Soddy, superintendent of the motive department for the Calumet & Hecla Consolidated Copper Co., Calumet, Mich., has retired. He was the oldest employe of the corporation in continuous service, having joined in 1866.

* * *

F. H. Riegel has been appointed advertising manager of Stevens-Walden-Worcester Inc., Worcester, Mass., maker of wrenches and automotive equipment.

* * *

P. B. McGinnis, associated with the Westinghouse Traction Brake Co., Chicago, for the past 14 years, has joined the Westinghouse Friction Draft Gear Co.

* * *

Harry C. Ives, for many years president of the Ives Mfg. Co., Bridgeport, Conn., maker of metal toys, has been elected chairman of the board of directors.

Charles R. Johnson has been elected president of the Ives company and is directing the sales activities.

* * *

William Greenbaum has been elected president of the Acme-Palmers & DeMooy Foundry Co., Cleveland, succeeding William B. Greene whose death was announced in IRON TRADE REVIEW, issue of Oct. 6.

* * *

C. J. Martin has become associated with the National Pneumatic Co., New York, maker of train devices, as mechanical expert in the western territory with headquarters in Chicago. He was at one time with the Burdett-Rowntree Co., Chicago, maker of conveying equipment, and since 1916 has been working independently on various mechanical and electrical devices.

* * *

J. F. Craig, for four years a representative of Westinghouse Air Brake Co., Wildmerding, Pa., at New York, has been made eastern sales manager. He has been with the company since 1913, entering in the experimental branch after his graduation from Cornell university. He left the company for a while returning in 1920 as Pittsburgh special engineer. He was stationed at New York in 1923.

Obituaries

JOHN STAMBAUGH SR., for many years secretary and treasurer of the former Youngstown Steel Co. and of the former Wm. Tod Co., engine builder at Youngstown, O., died unexpectedly, Oct. 6, at his home in that city. He had been in ill health since last winter when he suffered a nervous breakdown incident to overwork in connection with the completion of the beautiful public auditorium dedicated to the memory of his brother, Henry Stambaugh, who died in 1919.

John Stambaugh was born in Youngstown, O., Feb. 15, 1862. His father was a pioneer iron and coal man of the Mahoning valley, being a partner of the late Gov. David Tod in the former Brier Hill Iron & Coal Co. which they founded and conducted many years successfully. The son was graduated from Cornell university, Ithaca, N. Y., in 1884, and immediately as chemist entered the employ of the Youngstown Steel Co. which had been started the year previous. The Youngstown Steel Co. was built to dephosphorize pig iron by the Krupp-Bell process, and it became one of the most successful and profitable valley industries. The younger Stambaugh soon was elected secretary and treasurer of the company of which the late Tod Ford was president and general manager. He continued to hold that office while the company remained in business, although meanwhile he also was treasurer of the Wm. Tod Co., important foundry and machine operator, now a part of the United Engineering & Foundry Co.

When the Brier Hill Steel Co. was formed by the Tod and Stambaugh interests on Feb. 1, 1912, to take over the Brier Hill Iron & Coal, the Youngstown Steel and other allied properties, John Stambaugh was elected treasurer. He remained identified with the company until several years ago when it went into the possession of the Youngstown Sheet & Tube Co. Then he became a director of the Sheet & Tube company which office he held until his death. He also was a member of the board of the Cleveland bank of the Federal Reserve system, being named by President Wilson. Due to ill-health, he had contemplated retiring at the end of his present term, and meanwhile two local banks had planned to elect him to membership on their boards. His business judgment was considered sound and his advice was eagerly sought. While retiring in disposition, he was democratic in spirit and was highly regarded by a wide circle of personal friends.

* * *

Frederick C. Coggin, 55, treasurer of the Bovey Auto Heater Co., Chicago, and a copper mining engineer, died Oct. 4.

* * *

John Quincy Adams, retiring president of the National Association of Stationary Engineers, died in San Francisco recently.

* * *

Frank A. Gring, for 17 years president and general manager, Franklin Brass Foundry Co., Reading, Pa., died recently, aged 56. He founded the Brass company in 1908.

* * *

John Etaough, 65, founder of the Dominion Tack & Nail Co., Galt, Ont., Canada, died recently. He was born in Taunton, Mass., and was associated for some time with the United Shoe Machinery Co. at Montreal, Que.

* * *

Svante Arrhenius, chemist and astronomer, died Oct. 2, in Stockholm, Sweden. He was the originator of the theory of electrolytic dissociation, announced first in 1884 and amplified in 1887. He won the Nobel award in

(*Concluded on Page* 946)

British Furnaces Are Resuming

Foreign Pig Iron Competition Eliminated—Domestic Order Placed for 45,000 Tons of Rails; Manchuria Buys 51,000 Tons—Wire Rod Entente Fixes Price at $24.73—Low Offers Made on Sheet Bars

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Oct. 11.—The British pig iron market is firm. Foreign competition has been practically eliminated, and blast furnaces are being restarted. The United Steel Co., Workington, has obtained a domestic order for 45,000 tons of rails. The steel market generally is quiet. Prices are firm. Continental makers are dropping their prices, but early delivery offered by British works is beating their price competition. India is buying light sheets. Tin plate mills are working halftime, and largely in anticipation of Russian canning orders. Cast iron pipe makers are busy working off recent bookings.

Berlin reports British hematite is offered at £3 19s 6d ($19.32) c.i.f. Hamburg. The Belgian market is quiet. It is estimated that the bottom of the present price movement there has been reached. A slight improvement is reported in the French market. The Franco-Belgian rail syndicate has taken an order for 51,000 tons of rails for Manchuria. Sheet bars are reported to have been offered to American buyers at £4 4s ($18.81) f.o.b. Antwerp. The European wire rod entente has fixed the price of wire rods uniformly at £5 10s ($24.73).

British Pig Iron Situation Continues Gain

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Sept. 30.—(*European Staff Service*)—The improvement in pig iron is, on the whole, maintained. Prices are unchanged, but firmer. At Middlesbrough, stocks have been absorbed, and there is some hope that the nine furnaces stopped lately will soon be restarted. The fact that no furnaces have been put out for some time may be taken as a decided improvement.

Exports have once more become an important feature. British No. 3 pig iron being now cheaper than that made on the Continent. At home, the best customers are pipe casters,

Sterling $4.86

some large orders having been placed lately, and the founders being full of work. It is significant that almost the only people who made profits during the past year were the pipe casters, and the Stanton Co. is finding it necessary to make extensive enlargements of its plant. This company recently secured from the Morley town council an order for 1500 yards of 12-inch concrete-lined cast iron pipe of the value of £1,722.

Business is decidedly quiet in steel, and nobody orders anything that is not immediately required. The result is that mills are flooded with orders for trifling tonnages, necessitating frequent roll changes. Almost any description of steel can be obtained at a few hours' notice.

The largest order placed lately appears to be a contract entrusted to Guest, Keen & Nettlefolds by the Egyptian State railways. At present, the home railways are buying hardly any rails, although they have given out good orders for locomotives and some makers of copper tubes entrusted with such orders are working overtime. The railroads will have to buy shortly, and as they insist strictly on British material, their

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, October 10	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$15.83	3 5 0*	$14.12	2 18 0	$14.12	2 18 0	$14.61	3 0 0
Basic	.....	.....	14.61	3 0 0	14.61	3 0 0	14.61	3 0 0
Basic-bessemer	18.26	3 15 0†	13.88	2 17 0	13.88	2 17 0	14.61	3 0 0
Hematite, Phosphorus 0.02-0.05	18.02	3 14 0	21.81	555*	.....	.....	17.05	3 10 0
SEMIFINISHED STEEL								
Billets	$28.00	5 15 0	$20.45	4 4 0	$20.70	4 5 0	$21.18	4 7 0
Wire rods	47.48	9 15 0	26.79	5 10 0	26.79	5 10 0	26.79	5 10 0
FINISHED STEEL								
Standard rails	$37.74	7 15 0	$31.05	6 7 6	$31.05	6 7 6	$31.05	6 7 6
Merchant bars	1.58c	7 5 0	1.01c	4 12 0	1.02c	4 13 0	1.02c	4 12 6
Structural shapes	1.55c	7 2 6	1.00c	4 8 0	1.00c	4 8 0	1.01c	4 12 0
Plates, ship, bridge and tank	1.71c	7 17 6	1.32c	6 0 0	1.32c	6 0 0	1.32c	6 0 0
Sheets, black 24 gage	2.39c	11 0 0	2.06c	9 7 6	2.06c	9 7 6	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	3.04c	14 0 0	3.96c	18 0 0	3.71c	2,850*	3.74c	17 0 0
Bands and strips	2.28c	10 10 0	1.16c	5 5 0	1.16c	5 5 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.57c	7 2 6	1.57c	7 2 6	1.60c	7 5 0
Galvanized wire, base	3.04c	14 0 0	2.04c	9 5 0	2.04c	9 5 0	2.09c	9 10 0
Wire nails, base	2.83c	13 0 0	1.73c	7 17 6	1.73c	7 17 6	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.38	0 18 0	.....	.....	.....	.....	$ 6.82	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$15.83	3 5 0	$18.08	460(2)	$17.10	615	$17.02	74
Basic pig iron	.....	.....	19.45	495(1)	13.90	500	19.32	84
Furnace coke	3.17	0 13 0	6.68	170	5.14	185	4.95	21.50
Billets	28.00	5 15 0	19.65	500	21.96	790	25.88	112.50
Standard rails	1.74c	8 0 0	1.47c	775	1.43c	1,100	1.46c	140
Merchant bars	1.63c	7 10 0	1.05c	555	1.13c	870	1.40c	134
Shapes	1.65c	7 12 6	1.01c	530	1.11c	850	1.37c	131
Plates, ship, bridge and tank	1.84c	8 7 6	1.32c	695	1.40c	1,080	1.55c	149
Sheets, black, 24 gage	2.50c	11 10 0	2.32c	1,290	2.21c	1,700	2.29c	220
Sheets, galvanized 24 gage, corrugated	3.04c	14 0 0	4.05c	2,250	3.71c	2,850	3.65c	350
Plain wire	2.12c	9 15 0	1.71c	900	2.15c	1,650	2.03c	195
Bands and Strips	2.28c	10 10 0	1.35c	710	1.37c	1,050	1.61c	154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longway. British export furnace coke £0 13s 0d ($3.17) f. o. b. Ferromanganese £18 11s 3d ($90.40) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($73.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg and German are for basic-bessemer steel.

business ought to give an impetus to the rail mills.

Most ship plates ordered lately have been given out to British mills, and as shipbuilders are getting busy the plate mills ought to be secure for a good winter's work. The shipbuilding industry is better than for some years past. But the capacity of the individual mill has enormously increased lately, and much business will have to be given out if this department is to find regular employment.

The Staffordshire iron trade continues depressed, with mills working at not more than half capacity. There is an increasing disposition to substitute iron for steel in the manufacture of cast water pipe exposed to the weather, or having to discharge their function on the ground. But only the fastidious engineer orders wrought iron pipe at £4 ($19.44) or £5 ($24.30) per ton more than steel. The work of dismantling Staffordshire works goes on steadily, and the iron business is only a shadow of its former self.

The state of the Welsh tin plate trade is causing the gravest concern. One day last week, for the first time for six years, every mill in the Swansea district was idle, and more and more are dropping out of action. Various remedies have been tried. The men have been invited to say whether they are willing to reduce the working shift from eight hours to six hours, to give a chance to unemployed comrades. But they were not equal to this act of self-sacrifice. The pooling system and the regulation of output have proved useless and makers are at their wits end. The price is weak at 18s ($4.38) per box and stocks are at least three times heavier than they were a year ago.

In regard to new business the galvanized sheet trade is not much better than tin plate. Fortunately the mills have still good order books sufficient, except in the case of Scotland, to carry them on for the rest of the year. The price continues at £14 ($68.04) basis but £13 15s ($66.82) would not be refused for a good order.

Heavy steel scrap is stagnant with low prices and poor demand.

German Iron Price Cut

Berlin, Sept. 25.—(*European Staff Service*)—The pig iron union recently decided to reduce the price of certain grades of pig iron 3 to 6 marks per ton. This decision was to counteract British competition which has increased of late. A few weeks ago the price of foundry pig iron had been cut to meet the competition of the independent firm of Roechling. At the monthly meeting of the Stahlwerks Verband, or association of steelworks, it was stated that the works still have a considerable tonnage of orders on hand and that the volume of new business is satisfactory. No change has been made in domestic quotations. Business in tubes is improving, according to a report of the tube union, and it is expected prices will be maintained at their present level until the end of the year. The annual report of the union of machinery manufacturers states that during August domestic orders slightly decreased, while export orders continued on a large scale. The recent commercial agreement concluded with France is considered acceptable by machine makers.

It is reported that the United Steelworks are building a modern gas plant with 126 ovens which will each produce 7500 cubic meters of gas per day. Another plant will be erected giving a total output of 1,600,000 cubic meters per day. With the use of five compressors, these plants, which should be completed by April 1, 1928, will have an output of 25,000 cubic meters per day. Krupp and the United Steelworks are said to have acquired the British patents for the manufacture of stainless steel by the Hamilton-Evans process.

The Eisen and Stahlwerk Hoesch have declared a dividend of 8 per cent for the financial year 1926-27. The Koeln Neuessen Bergwerksverein, whose interests are associated with those of Hoesch, announce a dividend of 9 per cent. Each concern is proposing to increase its capital by 16,000,000 marks ($3,700,000) with a view to increasing productive capacity.

The Bochum steelplant of the Lothringen concern that has been under construction for over two years has just started operations. One open-hearth furnace was started early in August and another will be put into commission in October; each furnace has a capacity of 50 tons. One 5-ton electric furnace is operating and one 15-ton electric furnace will commence working shortly. The new plant is capable of producing about 10,000 tons of steel per month and will specialize in the manufacture of high-grade sheets. Orders already have been received, both from the domestic market and from foreign countries. The concern is not affiliated with the raw steel union.

German Output Larger

Berlin, Sept. 24.—(*European Staff Service*)—A new high mark was reached in the production of steel ingots and castings in Germany during August when 1,426,253 metric tons were produced, compared with 1,415,083 tons, the previous high mark, which was reached in March. The August output was composed of 1,399,455 tons of ingots and 26,798 tons of steel castings. The ingot production was composed of 756,258 tons of basic open-hearth, 608,782 tons of basic bessemer, 16,916 tons of acid open-hearth, 14,221 tons of crucible and electric, 3240 tons of welding steel and 39 tons of acid bessemer. The production of rolled products in August also exceeded all previous records, 1,129,837 metric tons, against 1,100,728 tons, the preceding high mark, reached in March.

In August the output of German blast furnaces was second only to the high mark reached in March, the August production being 1,115,503 metric tons, as compared with 1,085,859 tons in March. The August output was composed of 693,007 tons of basic bessemer pig, 237,560 tons of ferro-alloys, 104,935 tons of foundry, 73,384 tons of hematite, 4164 tons of direct castings, 1869 tons of gray forge and 584 tons of acid bessemer pig iron. The following table gives figures for the first eight months of 1927, compared with the monthly averages of the three preceding years and 1913 in metric tons:

Mon. ave.	Furnaces last day	Pig iron	Steel ingots and castings	Finished steel
1913*		909,640	980,700	970,240
1924		651,020	819,605	681,195
1925		848,060	1,016,210	853,840
1926		803,620	1,028,780	861,445
1927				
Jan.	115	1,059,798	1,308,251	1,043,217
Feb.	113	966,909	1,233,071	951,994
March	111	1,085,859	1,415,083	1,100,728
April	113	1,051,872	1,288,400	1,009,143
May	112	1,129,802	1,378,289	1,089,779
June	113	1,067,583	1,327,976	1,062,529
July	115	1,108,893	1,361,785	1,049,539
Aug.	115	1,115,503	1,426,253	1,129,837

*In present boundaries.

Form Export Sales Body

Paris, Sept. 22.—(*European Staff Service*)—It is announced that the Societe Lorraine des Acieries de Rombas, Societe des Mines et Usines de Redange-Dilling, Hauts Fourneaux et Acieries de Differdange, Saint-Ingbert, Rumelange (known as Hadir), have joined in forming an export company under the style of Compagnie de Depots et Agents de Vente d'Usines Metallurgiques Exportation (Davum-Export), to handle sales of their products in foreign markets. This organization is copied from a similar one formed by the Forges et Acieries de la Marine et Homecourt for domestic sales. Davum-Export also will handle sales for la Marine et Homecourt. Previous to forming the new export company the above-mentioned firms exported their products through Sogeco. The general office of Davum-Export is at 96 Rue Amelot, Paris, and it will commence operations Oct. 1.

French Coke Output Up

Paris, Sept. 25.—(*European Staff Service*)—The output of coke by French collieries during July was above that in June. Imports of coke in July were abnormally low. The decrease in the tonnage of coke imported was chiefly due to the fact that shipments from Germany in July reached only 133,100 tons, as against 244,977 tons in June. The Belgo-Luxemburg economic union shipped to France 61,321 tons of coke, and 375 tons came from Holland. Exports of coke from France in July were above those of June. Of the July shipments, 20,862 tons went to Italy, 15,493 tons to Switzerland, the remainder going to Yugo-Slavia, Spain, Belgium and Luxemburg, and other countries. The following table gives figures for the first seven months of 1927 as compared with the monthly averages of the three preceding years and 1913 in metric tons:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1924	220,765	350,160	42,330
1925	255,410	419,410	39,440
1926	313,950	462,915	39,320
1927			
Jan.	348,957	528,861	15,608
Feb.	312,525	431,972	22,363
March	344,101	394,187	30,753
April	331,237	388,781	22,519
May	336,740	426,314	32,792
June	336,029	396,953	35,547
July	343,769	194,994	43,296

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

CLAY REDUCTION CO., Chicago, has acquired a new process for the manufacture of alumina from common clay and from bauxite of high siliceous content. A pure silica of high porosity is a by-product of the process. The process has been developed by Svend Seglem Svendsen, formerly of Sarpsborg, Norway. Officers of the company are: President, Louis Birkenstein; vice president, Svend Seglem Svendsen; second vice president, George Birkenstein; secretary-treasurer, Dr. Max Woldenberg.

* * *

WENCO MFG. CO., Chicago, has started the manufacture of a new type of wire stripper and will be in production in a short time.

* * *

HARPER-WYMAN, MFG. CO., Chicago, recently incorporated, will manufacture a line of special gas range cocks. A plant has been leased for present use. P. S. Harper is president, Kendall Wyman vice president, J. J. Toomey treasurer and A. C. Armstrong secretary.

* * *

STOCKHAM PIPE & FITTINGS CO., Birmingham, Ala., has started its newly installed electric furnace and is producing high-pressure fittings. The capacity of the department will be 500 tons monthly of castings. Steel scrap is utilized and a crane runway 875 feet long has been built over the scrap yard.

* * *

PERFECT CIRCLE PISTON RING CO., Hagerstown, Ind., has bought the building in Newcastle, Ind.,. formerly occupied by the Lomer Armored Tire Co., and will use it as a foundry. Rough castings will be produced from which piston rings will be machined. Experimental casting has been done in the plant under option during the past year.

* * *

DAVENPORT BRASS FOUNDRY, Davenport, Iowa, recently incorporated to take over a partnership and increase capital, is building an additional foundry to increase production from 20,000 to 30,000 pounds of brass per day. Four oil-fired melting furnaces are employed. Frank B. Meckel is president, Orion G. Meckel vice president, George G. Meckel secretary and John B. Phillips treasurer. Directors includes the officers and Malvern W. Iles.

* * *

ALLIS-CHALMERS MFG. CO., Milwaukee, has received a contract from the Ozark Pipe Line Corp. for twenty-two diesel engine driven high pressure oil pumps for handling crude oil through pipe lines. Nineteen pumps are driven by 16 x 24-inch 270 horsepower triplex diesels and the remaining three by 16 x 24-inch 180 horsepower duplex engines. With this installation, the Ozark company will have a total of 71 oil engine driven pumps, all built by Allis-Chalmers. It then will have a capacity of transporting 54,000 barrels of oil per day from Cushing, Okla., to the Wood River refinery at St. Louis, and sending 24,000 barrels a day of this quantity from that refinery to the refinery at East Chicago. The total length of this pipe line is 800 miles, the section from Cushing to St. Louis being 10 inches and from St. Louis to East Chicago 8 inches in diameter. The present contract calls for delivery of the first unit within sixty days and one complete engine and pump must be shipped every four days thereafter.

Fall Business Outlook in Southeast Good

That the 1927 fall outlook for foundry and machinery business in the Southeast is the best in four or five years is the opinion expressed recently by prominent members of the Southern Metal Trades association, membership of which includes a number of the larger concerns in the southern states identified with the metal trades industries.

This opinion is based on the steady increase in business the industry has recently enjoyed, the exceptionally large volume of inquiries now being received, and the easing of the financial situation in the South occasioned by the unusually high prices prevailing for most of the important southern crops.

Employes of the Globe Stove & Range Co., Kokomo, Ind., have been given group life insurance policies.

August Steel Castings Output Gains

Washington, Oct. 11.—Following a drop in July in production of steel castings the August total rose to 83,-198 tons, according to reports of 123 manufacturing companies to the department of commerce. Production in August was at 63 per cent of capacity. Bookings in August dropped to 61,369 tons compared with 72,-012 tons in July. Further comparisons follow:

BOOKINGS

1926	Net tons	Per cent of capacity	Railway specialties net tons	*Miscellaneous castings net tons
Aug.	68,127	51	22,998	45,129
Total 8 mos.	696,731	66	266,430	430,301
Sept.	67,363	51	22,031	45,332
Oct.	74,680	56	27,827	46,853
Nov.	71,124	54	28,079	43,045
Dec.	86,006	65	38,111	47,895
Total, 12 mos.	996,266	63	382,478	613,426
1927				
Jan.	101,768	77	48,717	53,051
Feb.	91,797	69	39,792	52,005
Mar.	82,558	62	31,380	51,178
Apr.	78,352	59	31,004	47,348
May	66,736	50	24,644	42,092
June	*84,675	64	34,702	*49,973
July	*72,012	54	*29,979	*42,033
Aug.	61,369	46	20,220	41,149
Total 8 mos.	639,267	60	260,438	378,829

PRODUCTION

1926				
Aug.	81,422	61	26,088	55,334
Total 8 mos.	766,929	73	301,722	465,207
Sept.	79,471	60	22,837	56,634
Oct.	79,804	60	25,737	54,067
Nov.	86,626	65	24,421	62,205
Dec.	82,336	62	28,699	52,637
Total 12 mos.	1,095,166	69	403,416	691,750
1927				
Jan.	84,674	64	32,982	51,692
Feb.	85,464	64	33,250	52,214
Mar.	97,329	73	38,784	58,545
Apr.	90,570	68	36,693	53,877
May	81,950	62	31,659	50,291
June	*82,118	62	30,538	*51,580
*July	75,551	57	29,679	45,879
Aug.	83,198	63	29,774	53,424
Total 8 mos.	680,854	64	263,359	417,495

*Revised.

Four iron manufacturers were signers of the Declaration of Independence. They were Stephen Hopkins, Hope Furnace, R. I.; George Taylor, Dunham furnace, Bucks county, Pa.; James Smith, York county, Pa.; and George Ross, Mary Ann furnace, Huntington county, Pa.

Obituary

(*Concluded from Page* 942)

1903 and was a member of numerous societies.

* * *

William Bates, 57, sales manager of the Superior Screw & Bolt Co., Cleveland, was killed in an automobile accident in that city, Oct. 9.

* * *

Percy G. Hinkley, vice president, George W. Moore Co., Chicago, maker of spiral conveyors, buckets, etc., died in that city recently.

* * *

Henry F. Bassett, president and general manager of the Taunton-New Bedford Copper Co., Taunton, Mass., and connected with the company for more than 40 years, died at his home Oct. 8.

* * *

Sherman Sanders, 46, plow manufacturer of Chattanooga, Tenn., died, Oct. 2. He had been associated with his father, Newell Sanders, in the Newell Sanders Plow Co. Mr. Sanders was a graduate of Georgia Institute of Technology.

* * *

Francis L. Hine, chairman of the executive committee of the First National bank, New York, and a director of the American Can Co., American Radiator Co. and other corporations, died at his home, Glen Cove, Long Island, N. Y., Oct. 9, aged 76.

* * *

Thomas W. Mitchell, 71, founder of the Taber Pump Co., Buffalo, died recently in that city. He was born in Buffalo, where he was an apprentice machinist for a time. The Pump company was founded 42 years ago, and at the time of his death, Mr. Mitchell was superintendent.

* * *

Thomas S. Hobbs, president, Hobbs Hardware Co. and Hobbs Mfg. Co., London, Ont., Canada, died Oct. 1, aged 72. He was born in England, going to Canada where he established the hardware company, 50 years ago, at London, Ont., in partnership with his brother. He took an active part in public affairs at London.

* * *

Charles H. Lovsey, president of the Charles H. Lovsey Co., Pittsburgh, died at his home in that city recently. He had been identified with the by-product coke oven industry since its start in this country, receiving his early training at the New England Gas & Coke Co., Everett, Mass. Mr. Lovsey built the first saturator used in this country for the manufacture of ammonium sulphate.

* * *

Arthur G. Henry, metallurgist, Danly Machine Specialities Inc., Chicago, dropped dead in that plant Oct. 5. He was born in Ebbw Vale, Wales, and started his metallurgical career serving as an apprentice in the Ebbw Vale Iron & Steel Co. works for three years, in the laboratory. Later, his metallurgical education was continued at the University of Bonn, on the Rhine river in Germany. At one time he was first assistant chemist in the second largest steelworks in Germany near Bochun, Westphalia, in the Ruhr valley. Mr. Henry came to the

ARTHUR G. HENRY

United States in 1896 and for a time worked in the research laboratory of the Illinois Steel Co. South works, South Chicago, Ill. He was the first foundry chemist in Chicago, serving in that capacity in 1900 with the Featherstone Foundry & Machine Co., later purchased by the American Brake Shoe & Foundry Co. He was also the first metallurgist with the Illinois Tool Works, Chicago and was responsible for the development of that interest's modern heat treating laboratory. In 1920, Mr. Henry organized the Perfection Tool Hardening Co., selling it in 1926 and buying into Danly Machine Specialities Inc. He was voted a founder membership in the American Society for Steel Treating at its convention in 1926 at Chicago, having been associated closely with the rise of the society since its organization in 1918, and chosen secretary-treasurer at its first meeting. In 1919 he conceived the idea of holding an exhibit in connection with the annual convention. Mr. Henry was a member of the National Pressed Metal society, and was secretary of the Chicago chapter of the American Society for Steel Treating.

* * *

E. L. Hartwell, for ten years manager of the Yak mines, Leadville, Colo., died recently in Denver. At the time of his death he was manager of the Colorado Zinc-Lead flotation mill at Leadville. He was born in Kansas in 1883 and was graduated from Ohio Northern university, Ada, O.

* * *

Charles Campbell, president of the Campbell Iron Co., St. Louis, died recently, aged 84. He was born in Johnstown, N. Y. and went west 50 years ago. He was at one time employed in Milwaukee, going to St. Louis from there, to become associated with Waterman Bros. & Co. That company became the Waterman-Campbell Iron Co., and later the Campbell Iron Co.

Ohio River Reclaimed by Commerce

(*Concluded from Page* 910)

ton, Ky. Vice presidents were named for half a hundred cities and towns along the banks of the Ohio in six states.

The formal program of papers and addresses included these: "Flood Control," by Richard W. Edmonds, of the editorial staff of *Manufacturer's Record*, Baltimore, in which he advocated impounding flood waters at the head of navigation or of the headwaters of rivers; "The Rivers at Work" by A. E. Crockett, of the Jones & Laughlin Steel Corp.; "Warehousing in Relation to Distribution," by A. Lane Cricher, acting chief of the transportation division of the department of commerce, Washington; "Raw Materials of the Great Kanawha Valley and Their Economic Relation to our National Life," by former Gov. E. F. Morgan, of West Virginia; U. S. Senator F. M. Sackett, of Louisville; Congressman H. W. Temple, of Washington, Pa., M. H. Thatcher of Louisville, Frank L. Bowman, of Morgantown, W. Va., and James A. Hughes, of Huntington; S. A. Thompson, secretary of the National Rivers and Harbors congress, Washington, Donald T. Wright, *Waterways Journal*, St. Louis and Donald Macleay, secretary of the Mississippi Valley association.

Machinery

Thus Far Tool Shows Fail to Show Effect Upon Important Markets—Present Demand Only Fair—Expect Railroad Lists Soon

SALES of machine tools and shop equipment continue to be closed at a fair rate, but a survey of more important centers fails to reveal any marked upturn as a result of the recent tool shows. The most sizeable business placed in the past week was that of the A. O. Smith Corp., totaling between $150,000 and $175,000. It was distributed between several dealers. Westinghouse Electric & Mfg. Co. has a small list pending and General Electric Co. is inquiring for ten miscellaneous tools. The railroads are inactive so far as taking new equipment, but it is expected that early next month several carriers will issue lists for their 1928 requirements. Buying by the automotive industry is light without signs of improvement.

New York, Oct. 11.—Trading in the local machine tool market is spotty, with orders confined largely to single machines and inquiry not of the fair-sized volume of a week ago. Sellers are expressing disappointment over the manner in which business has developed so far this fall. This dullness is noted in other lines of equipment, notably in cranes. In locomotive cranes, the market here is undergoing one of the most drab periods in several years. The New York Central is expected to inquire for eight lathes, two or three of the heavy type. Among the number of machines recently noted as purchased by the Wright Aeronautical Corp., Paterson, N. J., is 6 x 20-inch thread miller, placed with Niles-Bement-Pond Co. This company has also closed on a 90-inch heavy driving wheel lathe for the Grand Trunk railroad, and on a horizontal floor borer for a Youngstown, O., concern; also two 4-spindle millers for a motor company in Detroit, a used 20-inch drill for a concern at Rew, Pa., and a 16 x 8-foot cone-head lathe for a company in Los Angeles. A coal company in West Virginia has purchased the following used machines: three 24-inch drills, one motor-driven; a 42 x 17-foot lathe; a 10-inch slotter and a 25 x 18-foot lathe. General Electric Co., Schenectady, N. Y., has just come into the market for about 10 miscellaneous tools. Pratt & Whitney Co. has booked a profiling machine for a typewriter company in Hartford, Conn.; a jig borer for an electrical manufacturing company in Springfield, Mass.; a double automatic centering machine for a motor company in Detroit; and three 7 x 32-inch bench lathes for a company in Hartford county, Conn.

Worcester, Mass., Oct. 11.—Machine tool buying is slow to develop in volume. Single units show a fair gain, but heavier and large commitments drag. There is, however, a gain in inquiry following the recent exhibitions. A number of new tools have been brought out in local shops. The automobile trade is taking few tools, after placing a fair list in this section. The improvement in the textile field continues. Grinding machinery is moving well and small bench tools are going better.

Pittsburgh, Oct. 11.—With a more or less steady inflow of inquiries for single machine tools, or for one or two machines at a time, sales are bound to be made from time to time; but the fact is, October so far shows absolutely no improvement from a selling standpoint from the September rate to the same date. Typical orders involve a vertical milling machine, a high speed riveting hammer, two drill presses, a combination punch and shear, three other drill presses, all from different manufacturers. Many of the inquiries are for estimating purposes only and take a long time to materialize into orders. The only list pending is that of the Westinghouse Electric & Mfg. Co., and it is disappointing. One or two from trade schools are expected to come out in January. Cranes are quiet. Carnegie Steel Co. is asking for several mill-type cranes but is slow about placing orders.

Cleveland, Oct. 11.—Business here is failing to shape up to expectations, although there is evidence of a gradual improvement. Sales thus far in September probably will not average more than 60 per cent of those in the corresponding period of October, 1926. Miscellaneous orders for small equipment are good and it is to be noted that while the total sales thus far this month are nearly equal to those for the whole October a year ago, a great many more accounts are represented. The automobile industry here and in Detroit is providing little in either sales or inquiries.

Chicago, Oct. 11.—Inquiries for and sales of machine tools are in fair volume, although no marked upturn has developed from the rate of activity of the past month. The purchase of about $150,000 to $175,000 worth of tools by the A. O. Smith Corp., Milwaukee, comprised the largest business in this territory by far during the week. This order was split up among a number of dealers. J. I. Case Threshing Machine Co., Racine, Wis., still has a few items to close on its list that has been outstanding for some weeks. Several of the railroads are asking for preliminary estimates for machine tools to be included in their 1928 budgets. Early next month, it is expected, tentative inquiries will come out from a number of carriers for 1928. Several manufacturing concerns in the Chicago district have closed on a few tools during the week. A harvester-thresher manufacturer in Kansas City purchased several presses, a plate shear and a combination punching shear. A few fair-sized orders for used tools were placed. Buying of special tools is in moderate volume. Prices have been cut sharply on some recent orders.

CRANE ORDERS PLACED

Among single orders were 12-ton gasoline crawler crane for P. T. Cox Contracting Co., New York, to Link-Belt Co.; 12-ton gasoline crawler crane for Atmospheric Nitrogen Corp., Syracuse, N. Y., for installation at Hopewell, Va., to Link-Belt Co.; 12-ton gasoline crawler crane for E. J. Hughes, Mineola, N. Y., to Northwest Engineering Works; used gasoline crawler crane for Walter Gahagan, Brooklyn, N. Y., to unnamed seller; 25-ton electric crane for city of Hagerstown, Md., to Niles Crane Corp.; 12-ton gasoline crawler crane for Callahan Dock, Sand & Gravel Co., Harrison, N. J., placed last month but just announced, to Link-Belt Co.; 25-ton standard locomotive crane for T. Stuart & Son, contractors, Boston, to Browning Crane Corp.; 25-ton standard locomotive crane for Imperial Government railways, Japan, awarded through Asano Bussan & Co., New York, to Browning Crane Corp.

CRANE ORDERS PENDING

Two 5-ton handpower overhead cranes for state of New York; New Jersey Foundry & Machine Co., low bidder.

5-ton electric crane for Inland Steel Co., Indiana Harbor, Ind.; bids asked.

Awarded Prize at Show

A grand prize in the technical press section was awarded to the exhibit of the Penton Publishing Co. at the French foundry exhibition which was held in Paris, Sept. 7 to 10. The exhibit was arranged to illustrate the intimate relationship between modern business publications and the industries which they serve and the display was based principally on copies of the Penton publications, especially *The Foundry* and also IRON TRADE REVIEW, *Daily Metal Trade, Abrasive Industry, Marine Review* and *Power Boating.*

Possibilities in long distance steam transmission in industry will be the subject of the opening fall meeting of the Boston section of the American Society of Mechanical Engineers, Oct. 26. The principal paper will be presented by C. W. Conrad, plant engineer, Bird & Sons, East Walpole, Mass.

Brass Facts Published in "Brass Tacks"

"When Plumbing Took a Thousand Years Vacation" is one of the interesting features of *Brass Tacks*, Vol. I, No. 1, a new house organ published by the Bridgeport Brass Co. The "vacation" was between the time Rome's civilization vanished from the earth, and the revival of bathing when British royalty made a ceremony of it, and Henry the Fourth founded the military order, Knights of the Bath.

This little article of "human interest", affording opportunity for an attractive cover illustration, leads the way to a more serious consideration of brass and brass fittings. The idea back of *Brass Tacks* is that there is latent in the organization of the Bridgeport company a wealth of information which is useful to consumers of brass, and therefore *Brass Tacks* serves as a vehicle for its expression. The first issue contains articles on the principles involved in threading brass pipe; on the ordering of the right kind of brass for various purposes, on characteristics of brass fittings, and on water pipe sizes. A prize contest is announced for articles giving experiences in the use of brass.

New Rates on Spelter Are Ordered

Washington, Oct. 11.—Rates on spelter, in carloads, from points in Arkansas, Illinois, Kansas, Missouri, and Oklahoma to Indianapolis have not been found unreasonable but unduly prejudicial in a proposed decision prepared for the interstate commerce commission by Examiner Harry C. Barron. He prescribes nonprejudicial rates for the future but denies reparation. This proposed decision is in the case of the Chapman-Price Steel Co. against the Santa Re railroad.

Selling Gas by Billion from New Plant

International Combustion Engineering Corp., New York, has signed a contract with the Public Service Corp. of New Jersey for a minimum of ten billion feet of gas in ten years from the new plant to be built by the former at New Brunswick, N. J. This is the first low temperature coal carbonizing plant to be erected in this country by the International Combustion Engineering Corp. The process has been in use at Essen, Germany. Other products of the carbonization of 250,000 tons of coal per year will be 175,000 tons of a domestic smokeless fuel resembling anthracite; 6,000,000 gallons of coal tar, contracted to the F. J. Lewis Mfg. Co., Chicago; 1,250,000 gallons of crude motor spirits; 2,750,000 gallons of heavier distillates.

Industrial Business Changes

GUARANTEE LIQUID MEASURE CO., Rochester, Pa., and Marvel Equipment Co., Cleveland, have been merged into one company under the name Fry Equipment Co. Both Fry and Marvel units are being manufactured in the plant at Rochester, Pa.

* * *

Bodine Electric Co., Oakley boulevard and Ohio street, has completed its three-story addition and moved into its new offices.

* * *

Edible Nut Machine Co., manufacturer of machinery for handling nuts and fruits, has moved from 249 North Lincoln street to 2535 Washington boulevard, Chicago.

* * *

Associated Steel Fabricators of Detroit Inc., Detroit, has moved from 1020 Free Press building to the Book Tower, where larger quarters have been leased in suite 2115.

* * *

Otto Rupprecht has assumed ownership of the E. E. Steiner Co., Newark, N. J., manufacturer of core oven burners, and has dissolved the corporation. The business has been removed from 2 Avenue C to 197 East Kinney street, and modern equipment has been installed in the new plant.

* * *

Mack Products Co., Erie, Pa., has been bought by the La-Mat Process Co., which will enlarge its capacity and continue its line of tinners' and sheet metal equipment.

* * *

Herbert J. Grosvenor and his son, H. Lloyd Grosvenor, Fort Wayne, Ind., have bought the plant of the Raber & Lang Mfg. Co., Kandallville, Ind., and will continue the manufacture of its established line of cement mixers.

* * *

American Foundry Equipment Co., Mishawaka, Ind., will be represented in Buffalo territory by George F. Crivel & Co. Inc., 614 Ellicott square. George F. Crivel, president of the company, has been representative of the Whiting Corp., Harvey, Ill., and the J. W. Paxson Co., Philadelphia.

* * *

Hazard Wire Rope Co., Wilkes-Barre, Pa., has been incorporated to take over the wire rope business of the Hazard Mfg. Co. The insulated wire business will remain with the latter. The separation is to allow more intensive merchandising policy. The staff of the two companies has been made up from the old organization. No plant extensions will be made.

* * *

H. D. Conkey & Co., Mendota, Ill., announced some changes in territorial connections. The company's cranes are now being represented in the Cleveland district by W. C. Minier, 848 Leader News building, Cleveland; in the Baltimore district by Chatard & Norris, 206 Water street, Baltimore; and in the Pittsburgh district by the American Engineering Co., 727 Oliver building, Pittsburgh.

* * *

York Ice Machine Corp. York, Pa., has been formed by the merger of nine companies manufacturing ice machines. Thomas Shipley is president of the new company, and H. D. Pownall vice president. The merged companies are: York Ohio Ice Machine Co.; York Products Co., St. Louis; York Manufacturing Co., York, Pa; York Milk Machinery Co., York, Pa; York Oil & Chemical Co., York, Pa.; Shipley Construction & Supply Co,, Brooklyn, N. Y.; Bay State Construction & Supply Co., Boston; Southern Construction & Supply Co., Atlanta; and Greenwood Construction & Supply Co., Pittsburgh.

CONSTRUCTION *and* ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BRIDGEPORT, CONN.—Packard-Bridgeport Motors Inc., 170 Cannon street, has awarded the general contract for a new service, repair and sales building to include machine and repair departments, to T. J. Pardy Construction Co., Seaview avenue.

MERIDEN, CONN.—Bassick Co., Center and Brittania streets, will soon award the contract for a 2-story plant, 60 x 150 feet and 75 x 100 feet, for the manufacture of casters.

SPRINGDALE, CONN.—Stamford Rolling Mills Co., maker of brass goods, has awarded the general contract for its 1-story addition to the Bray Co., 62 Cannon street, Bridgeport. (Noted Sept. 29).

WASHINGTON—The bureau of standards has closed on structural steel for a power plant, to the Lehigh Structural Steel Co.

BALTIMORE—Hygiene Aluminum Inc., 10 South Hanover street, has been incorporated to manufacture kitchen utensils, by Harry S. Fisher.

ATTLEBORO, MASS.—Reading Barlow Smith Co. has been incorporated with $50,000 capital to manufacture jewelry and metal stampings, by Edwin F. Thayer.

BOSTON, MASS.—Edison Electric Light Co. will start work shortly on a power plant addition.

BOSTON—Boston Metallic Bed Co. Inc. has been incorporated with $100,000 capital to manufacture beds etc. by Ralph L. Curtis, 14 Soden street, Cambridge, Mass.

BOSTON—Low Supply Co. has been incorporated with 500 shares no par value to manufacture plumbing materials by Isador S. Low, 188 Whitmarsh street.

CAMBRIDGE, MASS.—Acme Apparatus Corp. recently incorporated to take over the business of the Acme Apparatus Co., 57 Osborne street, maker of electrical transformers, plans expansion.

WALTHAM, MASS.—Industrial Tube Co., 35 Lane street, has awarded the general contract for a 1-story addition 25 x 175 feet including alterations to its present plant, to J. C. Esterbill, 106 Buttonwood street, Dorchester, Mass.

WATERTOWN, MASS.—Lewis Shepard & Co., 124 Walnut street, Boston, manufacturer of machinery, has awarded the contract for a 1-story plant addition, 65 x 160 feet.

WORCESTER, MASS.—Crompton & Knowles Loom Works will start a mill addition 45 x 64 feet.

KEARNY, N. J.—Western Electric Co. is inquiring for structural steel for a further plant addition here.

NEWARK, N. J.—Louis V. Aronson's Art Metal Works, Mulberry and Center streets, will build a plant addition on newly acquired property, to increase its manufacturing space.

CHAPPAQUA, N. Y.—Board of education plans to install manual training equipment in a proposed new grade and high school. Man & MacNeille, 70 East Forty-fifth street, New York, are architects.

MASPETH, L. I.—American Bridge Co. has booked structural steel for a factory building to be erected here by the J. P. M. Real Estate Co.

NEW YORK—Henry L. Doherty has closed on structural steel for a switch house in Kansas.

NEW YORK—Hudson Valley Sand & Gravel Corp. has been incorporated with $20,000 capital by J. M. Klein, 2 Lafayette street.

NEW YORK—Hoboken Steel Partition Co. has been incorporated with $10,000 capital by S. Horowitz, 1 Madison avenue, attorney.

NEW YORK—Invincible Washing Machine Corp. has been incorporated with 100 shares no par value by Graham, McMahon, Buell & Knox, 165 Broadway, attorneys.

NEW YORK—New York Instant Freeze Corp. has been incorporated with $25,000 capital to manufacture freezing machines, by S. M. Katz, 1767 Broadway, attorney.

NEW YORK—Janvier S. Picano Corp. has been incorporated with $25,000 capital to manufacture mechanical devices by H. R. Kohn, Manhattan.

PORT HENRY, N. Y.—Port Henry Iron Ore Co., F. E. Clonan manager, contemplates building a plant.

WHITE PLAINS, N. Y.—Brockway Motor Truck Corp. has begun work on a brick fac-

Where Machinery Exports Went in July

	Lathes			Drills							Metal sawing				Pneumatic portable tools
	Engine	Turret	Other	Vertical	Radial	Sensitive	Other	Gear Cutters	Planers	Shapers and Slotters	cutting	Milling knee	Machines other	
Russia	.....	35	.....	.....	3	.....	.....	.....	.....	.....	3	.....	2	10
France	1	2	4	.....	.....	.....	1	1*	.....	.....	.....	13	9	144
Germany	10	1	6	4	1	.....	6	51	.....	2	.....	.....	.....	69
Italy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	25
Netherlands	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	4
Spain	3	.....	.....	1	.....	.....	.....	.....	.....	1	.....	8	.....	163
Sweden	.....	1	1	1	1	.....	3	.....	.....	.....	.....	.....	1	2
United Kingdom	22	13	8	.....	1	1	5	4	.....	6	1	1	24	555
Canada	6	9	8	8	.....	1	18	1	5	2	4	2	5	201
Mexico	2	.....	2	1	.....	.....	3	2	.....	.....	.....	.....	.....	15
Cuba	3	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	478
Argentina	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	90
Colombia	1	.....	.....	2	.....	.....	.....	.....	.....	1	.....	1	.....	26
Chile	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Brazil	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64
Japan and Chosen	.....	1	1	.....	.....	3	2	.....	.....	.....	.....	.....	1	24
Philippine Islands	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	7
Australia	2	.....	.....	.....	.....	12	.....	.....	.....	1	6	.....	1	80
British South Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
Venezuela	1	.....	1	.....	.....	.....	.....	.....	.....	.....	1	1	.....	2
Other countries	7	6	1	2	2	1	9	.....	.....	5	3	.....	1	197
Total, Jan., 1927	36	8	21	23	7	31	25	21	3	38	31	56	28	1,335
February	53	21	56	35	3	40	49	7	7	10	12	30	21	1,362
March	44	15	35	56	18	58	266	62	2	49	60	11	27	1,498
April	61	15	27	20	8	61	54	29	3	40	20	22	46	.....
May	52	20	35	16	4	90	106	1	4	22	8	12	33	1,458
June	48	16	39	17	9	15	71	34	4	28	10	9	38	2,081
July	60	69	32	20	8	20	47	62	6	18	19	27	44	2,198

Iron and Manganese Ores and Minerals

LAKE SUPERIOR ORES

Iron Ore

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 58 to 63 per cent	8.75 to 9.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Spanish manganiferous ore, 54 per cent iron and 2 to 4 per cent manganese	10.25 to 10.75
North African low phosphorus	11.00 to 11.50
Swedish foundry or basic, 62 to 65 per cent	9.50 to 9.75
Spanish foundry or basic, 52 to 56 per cent	9.50 to 9.75
North African foundry and basic 50 to 56 per cent	9.25 to 9.75

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian, 53 to 55 per cent washed	38 to 40 cents

Fluorspar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$16.00
Washed gravel, imported duty paid eastern tidewater, per net ton	16.00 to 16.50

tory building on Kensico avenue, on a plot 200 feet square.

BRADFORD, PA.—Robinson Knife Co., G. L. Robinson, 125 Barbour street, president, contemplates building plant additions.

ERIE, PA.—J. A. Zurn Mfg. Co., Fourteenth and German streets, maker of plumbing equipment, plans to build a new works, including a foundry, pattern and machine shop.

HOLTWOOD, PA.—Pennsylvania Water & Power Co., Charles E. F. Clarke, president, contemplates building a new hydroelectric plant fifteen miles above here, to increase the output in the York, Baltimore and Lancaster, Pa. territory.

PHILADELPHIA—Reading Co., Reading terminal, will build a new engine house with repair facilities at its shops at Cressona, Pa.

PHILADELPHIA—Wilkinson Equipment Co., 1011 Chestnut street, maker of filing cabinets, has awarded the contract for a 1-story plant to William Steele & Sons Co., 124 North Fifteenth street.

PITTSBURGH—Copperweld Steel Co., Braddock, manufacturer of welded copper and steel products, contemplates building on newly acquired property.

East Central

AURORA, ILL.—All Steel Equipment Co., John Knell, president, contemplates building a machine shop.

CHICAGO—Hess Warming & Ventilating Co., 1207 South Western avenue, contemplates building a 2-story factory 120 x 125 feet.

CHICAGO—S. & S. Machine Works, 4539 West Lake street, contemplates building a 1-story plant addition.

CHICAGO—Belden Mfg. Co., 2300 Western avenue, maker of electric wire and cables, magnet wire, etc., plans to build an addition to its plant.

CHICAGO—E. A. Baumbach Mfg. Co., 1812 South Kilbourne avenue, maker of iron and steel castings, contemplates building an addition to its plant.

CHICAGO—Scientific Precision Co., Arthington and Tripp avenues, manufacturer of precision instruments, will occupy a new plant to be built by the Regan Construction Co., Chicago. The plant will be 125 x 200 feet.

CHICAGO—Accurate Electric Co., 2037 Wabansia avenue, has been incorporated with $1000 capital to manufacture electric signs and apparatus, by J. W. Tauchen, 105 North Clark street.

CHICAGO—Pullman Pipe & Tube Co., 900 West 120th street, has been incorporated with $37,500 capital to manufacture pipes and tubes, by Hoffman & Golder, 100 West Monroe street.

CHICAGO—Parish Mfg. Co., 121 West Washington street, has been incorporated with $25,000 preferred, 500 shares no par value, to manufacture tools, grinding machines and thread cutting machines, by Andall & Snyder, 10 South LaSalle street.

CHICAGO—Vivid Inc., 140 South Dearborn street, suite 1530, has been incorporated with $50,000 capital and 10,000 shares no par value, to manufacture and deal in machinery, dies, tools, etc., by Netherton & Netherton, Marquette building, attorneys.

CHICAGO—Samuel Olson & Co., elevator engineer, 2418 Bloomingdale avenue, has purchased property on North Kostner avenue and plans to build a 2-story building to contain a machine shop, sheet metal department and a structural steel shop.

NEW ATHENS, ILL.—Auto Stove Works, George Wirth Jr., secretary and treasurer, will build a 2-story stove factory.

ANDERSON, IND.—Ames Shovel & Tool Co., Ed. Niwher, manager, has awarded the general contract for a 3-story pickling plant to Ben F. Wright, 228 West Seventh street.

FORT WAYNE, IND.—General Electric Co., C. H. Matson, superintendent of buildings and maintenance, will build a 1-story plant addition.

DOVER, O.—Reeves Mfg. Co., maker of sheet metal products, has awarded the general contract for a new 1-story plant, to the Austin Co., Cleveland.

NEW BREMEN, O.—Streine Tool & Mfg. Co. contemplates installation of an overhead crane with a 15 ton capacity and several smaller cranes.

EAU CLAIRE, WIS.—Northwestern Steel & Iron Works will build a 1-story machine shop addition, 50 x 100 feet. The general contract has been taken by the Walker Bros. Co., Eau Claire.

EAU CLAIRE, WIS.—A milk plant for the Eau Claire Milk Producers Co-Operative association at Galloway and Putnam streets is being designed by the Douthitt Engineering Co., Chicago. Work will begin about Dec. 1. William Wittcamp is manager.

EAU CLAIRE, WIS.—Gillette Rubber Co. 799 Wisconsin street, has let the contract to the Hoeppner & Bartlett Construction Co., local, for a 2-story addition, 60 x 65 feet, a third story on the present 2-story building.

Resale News

TOOLS and equipment of the Universal Machine Co., Baltimore, will be sold Oct. 18, by Samuel T. Freeman & Co., at peremptory liquidation sales. An unusually large list of tools and equipment is offered, including air compressors, presses, blowers, boring, drilling and milling machines, electric motors, filing machines, grinders, lathes, milling machines, punch presses, reamers, screw machines, shapes, shears, small tools and other equipment.

* * *

An auction of navy surplus and surveyed materials will be held at the navy yard, Philadelphia, Nov. 15. It will include 1,855,500 pounds of ferrous metals, 120,000 pounds of nonferrous metals, 45 hispano engines, electrical material, pumps, machinery, tanks and containers, plumbing supplies, and motor generators.

60 x 160 feet, and other alterations and improvements in its pneumatic tire plant.

LA CROSSE, WIS.—Trane Co., manufacturer of heating supplies, has placed contracts for the construction of a second story on the present one-story portion of its plant, 90 x 190 feet, at Second and Cameron streets.

MANITOWOC, WIS.—Wiese Laboratory Furniture Co., Manitowoc, has been awarded the contract for the laboratory furniture, fixtures and other similar equipment for the new senior and junior high school at Iron River, Mich.

MILWAUKEE—A. E. Dufenhorst Co., 182-184 Sixth street, Milwaukee, state distributor of Marmon motor cars, is preparing to build a new headquarters building for sales, service and storage, at Wisconsin avenue and Forty-fifth street. The site is 80 x 300 feet.

MILWAUKEE—Wisconsin Gear & Engineering Co., 251 Reed street, has been incorporated with $25,000 capital to take over the machine shop business conducted as the Wisconsin Gear Co. for many years. Ownership and management are unchanged. Christian Lauritzen is president and manager.

MILWAUKEE—Fuller Co. has been incorporated for the purpose of engaging in the manufacture of mechanical specialties, particularly a newly patented safety nozzle for handling gasoline as in filling stations. The incorporators are represented by members of Miller, Mack & Fairchild, attorneys, 425 East Water street.

MILWAUKEE—Village of Shorewood, Milwaukee, has authorized the Water Supply Finance Corp., 1923 Wells street, to make a survey and submit a proposition for drilling wells, building and equipping a pumping station and otherwise furnishing a complete municipal water supply. The village now purchases its water supply from the city of Milwaukee. H. P. Pressentin is business manager of the village.

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., and East Chicago, Ind.	52.00
Birmingham	51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Pet Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Per Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

West Central

MINNEAPOLIS—Strong-Scott Mfg. Co., 413 South Third street, maker of flour mill machinery and other heavy equipment, is completing plans for a 1 and 2-story addition.

MONTEVIDEO, MINN.—Henry Nicolai contemplates building a 1-story machine and repair shop 50 x 84 feet.

ST. PAUL—American Farm Machinery Co., Como avenue, has awarded the contract for a 1-story foundry addition, 56 x 75 feet.

ST. LOUIS—Heine Boiler Works Inc., 5315 Shreve street, has awarded the contract for a 1-story addition, 63 x 75 feet to the Fruincolnon Construction Co.

Southern States

TALLADEGA, ALA.—J. & R. Foundry Co., maker of cast iron specialties, is nearing completion of its new foundry, expected to be in operation by Nov. 1.

ATLANTA, GA.—Tri-State Culvert Mfg. Co., 491 South Second street, contemplates building a 1-story steel manufacturing plant.

NEW ORLEANS—Todd Engineering, Dry Dock & Repair Co., Fulton street, has awarded the general contract for an addition to its shipbuilding plant, to Ingalls Iron Works Co., Birmingham, Ala.

PURCELL, OKLA.—City council plans to expand its power plant.

MEMPHIS, TENN.—Jones & Laughlin Steel Corp. has awarded the contract for a plant addition to Estes Williams Co., Demon building.

MEMPHIS, TENN.—Tri-State Culvert Mfg. Co., 491 South Second street, maker of steel culverts etc. comtemplates building a plant on newly acquired property.

OLD HICKORY, TENN.—Du Pont interests are inquiring for structural steel for a manufacturing building here.

FT. WORTH, TEX.—H. A. Miles Mfg. Co., Ben W. Frieden, secretary, Holmes building, has awarded the general contract for a plant 75 x 100 feet for the manufacture of stoves and gas heaters, to Wood W. Graham, 3433 Avenue M.

GALVESTON, TEX.—Gray's Iron Works, 1901 A street, has been incorporated with $50,000 capital by Harry Gray, 3302 L street.

HOUSTON, TEX.—Lone Star Plate & Boiler Works has been incorporated with $10,000 capital by R. A. Fenzel, 8010 avenue B, and R. O. Albright, 6916 Avenue H, both of Fort Worth, Tex.

Western States

LOS ANGELES—Adams Pipe Works, 2025 Bay street, will build a plant 50 x 175 feet.

SAN FRANCISCO—McCormick Foundry Co., Folsom and Main streets, will rebuild the part of its iron foundry destroyed by a recent fire.

BOISE, IDAHO—Bids will be received Sept. 30 for construction of a concrete bridge across the Snake river at Idaho Falls.

ABERDEEN, WASH.—City clerk will open bids for construction of headworks, tunnel and pertaining works for the city's industrial water project.

MONTESANO, WASH.—Schafer Bros., logging operators, are building a logging railroad 22 miles in length from a timber tract to the company's mill here.

PUGET SOUND NAVY YARD, WASH.—Bids will be received by the supply officer here for furnishing one 2-ton caterpillar tractor and one rotary scraper. These machines will be used for grading the navy's aviation field at Sand Point.

SEATTLE—Ray Day Piston Co., has been incorporated with $2000 capital by Raymond G. Wright and associates, Leary building, Seattle.

EVERETT, WASH.—Everett Sound Machine Works has been incorporated with $15,000 capital by Olaf T. Thorson, James Oates and Theron S. Ellithorpe.

SPOKANE—Great Northern Railway Co. in 1928 will construct at its Hillyard shops here 1000 steel underframe box cars in addition to usual accessories. The same shops are completing an initial contract of 800 cars for the railroad.

Business in Canada

BURNABY, B. C.—E. A. Cleveland, chairman of the greater Vancouver water board, has been requested to report on necessary expenditure for adequate water supply here.

VANCOUVER, B. C.—Oldsmobile Motor Co., proposes to start work at an early date on addition to its plant here.

WINNIPEG, MAN.—Moore Lake Mines Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals with 3,000,000

shares no par value by Leo P. Winslow, Emmeline H. Winslow, Roland W. MacClure.

WINNIPEG, MAN.—Trans-Canada Motors Ltd. has been incorporated to manufacture and deal in motor trucks, automobiles, motor boats, etc., with $50,000 capital by Carl Schiller, George A. Dummert, James A. Pigott.

EDMUNDSTON, N. B.—Fraser Companies Ltd., has outlined a program whereby it will expand its various mills, here and in the United States. The program includes addition to the mills at Edmundston, N. B., so as to increase the output by approximately 250 tons daily. An addition of approximately 200 tons per day will be made to the company's plant at Madawaska, Maine.

TRENTON, N. S.—Nova Scotia Steel & Coal Co., (British Empire Steel Corp.) proposes to build a large addition to bolt plant here. I Moeller is superintendent.

GANANOQUE, ONT.—Ferguson Contracting Co., 243 Confederation Life building, Toronto, Ont., has been awarded the general contract for building addition to the plant of the Skinner Co. Ltd., here. Building to be 60 x 200 feet, brick and steel construction.

GUELPH, ONT.—Callander Foundry & Mfg. Co. has let the general contract to D. Barclay, 24 Melville avenue, for addition to its plant.

GUELPH, ONT.—Tenders have been received for addition to the plant of the Callender Foundry & Mfg. Co. Ltd. here. Construction work will be started soon.

HAMILTON, ONT.—City Council passed a by-law authorizing extensions to hydroelectric power plants here. S. H. Kent is city clerk.

HAMILTON, ONT.—Bids are being received by Hutton & Souter, 6 James street, south, Hamilton, Ont., on bulk contract for addition to the plant of the Firestone Tire & Rubber Co. of Canada Ltd., Beach road.

HAMILTON, ONT.—W. H. Yates Construction Co., 17 Main street east, Hamilton, Ont., has been awarded general contract for construction of brass foundry and chemical laboratory, including core building and melting building on Aberdeen avenue, for the Canadian Westinghouse Co., Sanford avenue. Building to be 2-story, 55 x 262 feet, reinforced concrete, brick and steel construction.

HUNTSVILLE, ONT.—Corrugated Cattle Cake & Cotton Seed Oil Co. Ltd., 66 Temperance street, Toronto, Ont., is negotiating for a site here, where it proposes to build a manufacturing plant.

KINGSTON, ONT.—The property and plant of the Silica Sand Co., east of Eastview Park, near here, has been sold to the Canada Glass Products Co., Ottawa, Ont. The new owners plan to build a large plant on the site of the present structure and to install modern machinery and equipment.

LEAMINGTON, ONT.—H. J. Heinz Co., Pittsburgh, proposes to start work next spring on a manufacturing plant here.

LONDON, ONT.—Cities Heating Co. Ltd. has been incorporated to carry on the business of a light, heat and power company, with $100,000 capital and 3000 shares no par value by directors, Robert Greene, William E. Greene, Kenneth C. Greene.

OSHAWA, ONT.—Canadian National Electric Railways, 1 Toronto street, Toronto, Ont., proposes to start work next pring on a power house and car barns here. Engineer, H. L. Vercol.

OSHAWA, ONT.—Town council proposes to purchase new electric pumping unit for installation at Lake pumping station. D. G. Conant is chairman of the board of water commissioners, and W. C. Smith city engineer.

OTTAWA, ONT.—Cogomet Mines Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals, with 3,000,000 shares no par value by William Baird, Hiram McFadden and William J. Hughes.

PRESTON, ONT.—Werlich Mfg. Co. will build a factory on Bishop street, 1-story, 60 x 144 feet, concrete, brick and steel construction.

ST. CATHARINES, ONT.—Scholler Bros., Philadelphia, and St. Catharines, Ont., has awarded a number of contracts in connection with erection of a large soap factory here.

STRATFORD, ONT.—McLagan-Erla Ltd. has been incorporated to manufacture and deal in radio receiving sets, radio cabinets, etc., with $100,000 capital by Earnest, Lewis J. Salter, James M. Riddell.

GRAVELBOURG, SASK.—Gravelbourg Electric Co. Ltd. has started work on a new power plant on Seventh avenue.

New Trade Publications

OPEN SIDE PLANERS—Cleveland Planer Co., Cleveland, has issued a bulletin describing its planers, with specifications and detailed illustrations. Ease of operation and control is stressed.

HOISTS—Silent Hoist Winch & Crane Co. Inc., Brooklyn, N. Y., has issued a folder showing several types of winches for various purposes.

METAL PRESS DIES—Mackintosh-Hemphill Co., Pittsburgh, has issued a bulletin on its dies for cold forming, illustrated. A list of applications of its dies is given.

SPEED REDUCERS—Link-Belt Co., Chicago, has published a bulletin describing a herringbone gear speed reducer. Features of construction and application of the reducers are shown by illustrations and text.

USED RAILWAY EQUIPMENT—Hyman-Michaels Co., Chicago, has issued a bulletin describing its offerings in new and used equipment for railroads, used machinery, hoists, air compressors, boilers, crushers and generators.

ELECTRICAL EQUIPMENT—General Electric Co., Schenectady, N. Y., in current bulletins presents pushbutton stations for magnetic controllers, battery charging equipment and horizontal edgewise meters. All are well illustrated.

DRILL POINTS—A correctly ground drill point and a number of incorrectly ground points are shown in a leaflet by the Morse Twist Drill & Machine Co., New Bedford, Mass. Faults in grinding and the resulting breakages are illustrated in halftones.

MECHANICAL SLEDGE—A power-operated sledge with large capacity, for all forging operations within its range, is described in a bulletin by the Chambersburg Engineering Co., Chambersburg, Pa. It is illustrated to show many of its applications.

LIQUID METERS—A meter for measuring liquids, to give an exact record and guard against losses, is featured in a bulletin by S. F. Bowser & Co., Inc., Fort Wayne, Ind. Five sizes are shown, each applicable to a certain volume requirement.

PORTABLE ELEVATOR—A hand power model with nonrevolvable base, one of its portable elevators, is described in a catalog section issued by the Revolvator Co., Jersey City, N. J. Details, specifications and applications are included.

POWER DEMAND LIMITATOR—Edward T. Moore, Syracuse, N. Y., manufacturer of electrical devices, has published a bulletin on his device for automatically controlling and limiting power demands or peak loads. It is well illustrated.

VERTICAL TURRET LATHE—A vertical automatic production tool with single spindle and indexing monitor type turret for boring, turning, facing and similar operations is featured in a current bulletin by the Bullard Machine Tool Co., Bridgeport, Conn. Full description and specifications are given.

STRAIGHTENING ROLLS—Kane & Roach, Syracuse, N. Y., has issued a bulletin covering one line of its straightening rolls. Details and specifications are given. Principles of straightening by means of rolls are set forth. Special types of machines for various purposes are also shown.

NICKEL—American Mond Nickel Co., Pittsburgh, is circulating a booklet describing its nickel pellets for alloying. A description of how the pellets are built up in layers by a process which gives high purity is of interest. Application of nickel in various alloys is covered.

FORGED STEEL FLANGES—A set of charts has been published by the American Spiral Pipe Works, Chicago, as an aid to engineers and draftsmen concerned with design of forged steel flanges for pipes and tubes. These make is possible by direct reading to determine stresses without mathematical solution of the formula.

BOARD HAMMERS—Erie Foundry Co., Erie, Pa., manufacturer of board hammers, has issued a bulletin covering its hammers with four rolls. This allows building of larger hammers than otherwise and application of the principle to smaller units improves them. It is illustrated to show details of construction and operation.

ELECTRIC INTERCOMMUNICATION—Ohio Brass Co., Mansfield, O., has issued a leaflet calling attention to the value of interconnection among electric generating plants as an economic measure. This is an element in lowered cost of electric current in the face of higher costs of elements entering into its production.

METAL LATH—Herringbone rigid metal lath is described in a bulletin by the General Fireproofing Metal Products, Youngstown, O. This is a manual of the use of metal lath in construction. It shows various methods of application, accessories to render it efficient and proper methods of applying plaster. Results of tests to determine its fireproofing qualities are given. Sample specifications for its use in building are given.

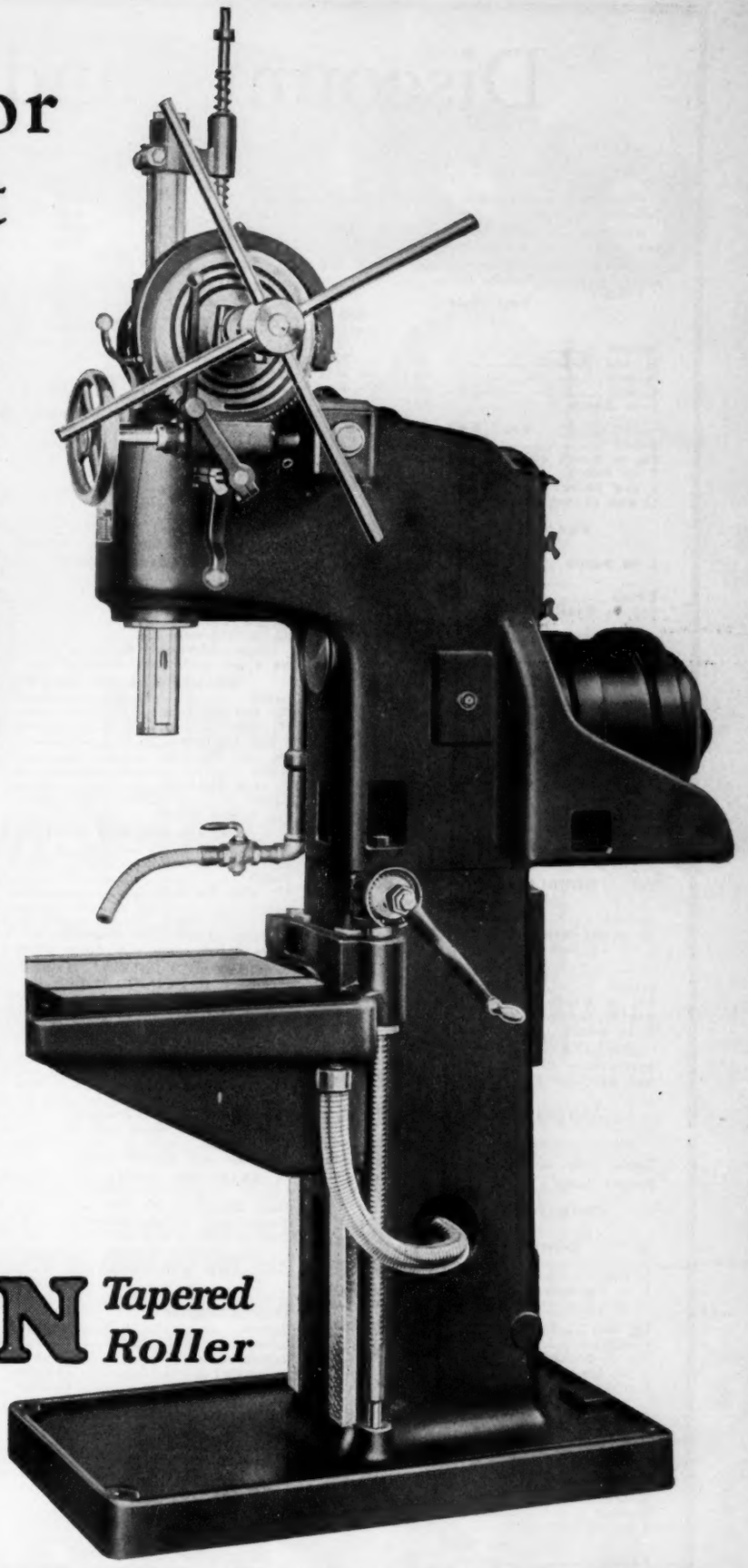
Timkens for Permanent Precision

Like highest grade machine tools of every type, the Barnes 20-inch, single purpose production drill is Timken-equipped.

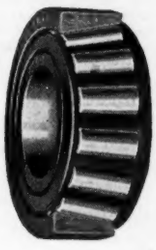
Carrying the main and intermediate drive shafts, Timken Bearings assure utmost precision, endurance and power economy. For Timkens not only eliminate all possible friction, but provide an abundance of thrust, shock, radial and speed capacity which preserves rigidity under all conditions.

Only Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken electric steel provide Timken capacity, simplicity and *permanence*. That accounts for the adoption of Timken Tapered Roller Bearings by such highly respected manufacturers as W. F. and John Barnes Co.

THE TIMKEN ROLLER BEARING CO.
C A N T O N , O H I O



TIMKEN *Tapered Roller*



BEARINGS

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8 inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾-inch	30	13
1 to 1½-inch		

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾-inch	30	14
1 to 1½-inch		

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

⅛-inch	47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+18	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¾ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot. 20c

Plates ordered 7.65 pounds per square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c

Sivyer Castings Can Be Forged and Welded

SIVYER (S) CASTINGS

DEPENDABLE

Athey Adds Miles of Service with Tougher Castings

To build the Athey Oil Field Wagon exceptionally strong and sturdy, yet as light as possible—to add miles of extra service, it was necessary to have the different parts, subject to severe strains and stresses, cast in the toughest steels. For those parts—9 of them—the Athey Truss Wheel Company logically turned to Sivyer. Breakages that ordinarily occur on such heavy duty, all purpose equipment, were defeated. Where casting demands are so important, Sivyer provides assurance against breakages. Careful foundry practice in addition to the close-grained, nonporous texture of Sivyer Electric Steels provides each casting with longer life and wear-resisting service.

During the last ten years, many manufacturers who have experienced difficulties with parts made in other metals or by other methods have come to us for solutions.

If you are having such troubles, send us your blue print of the parts, together with a statement of your difficulties. We will be glad to study your problems and recommend possible solutions without obligation on your part.

MID-CONTINENT OFFICE,
1415 F. & M. Bank Bldg.,
Ft. Worth, Texas

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

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United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
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Oxweld Acetylene Co., 30 E. 42nd St., New York City.

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International Oxygen Co., Newark, N. J.
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American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th and Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

AIR FILTERS
Midwest Air Filters, Inc., Bradford, Pa.

ALLOYS
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Leavitt, C. W., & Co., 30 Church St., New York City.
Rogers Brown & Crocker Bros., Inc., 21 E. 40th St., New York City.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Annealing Box Co., 801 Beaver Ave., N. S., Pittsburgh, Pa.
Pittsburgh Malleable Iron Co., 34th and Smallman Sts., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Zanesville Malleable Co., Zanesville, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The, 3675 E. 78th St., Cleveland, O.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARROWS
Sterling Wheelbarrow Co., Milwaukee, Wis.

BARS (Alloy)
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcements)
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Ryerson, Jos. T., & Son., Inc., 16th and Rockwell Sts., Chicago, Ill.

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Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Keystone Drawn Steel Co., Spring City, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Blystone Mfg. Co., Ironton St., Cambridge Springs, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Phoenix Iron Co., The, 20 So. 15th Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS, (Oilless)
Rhoades, R. W., Metaline Co., Inc., Rhoades Bldg., Long Island City, N. Y.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT FASTENERS
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.

BENCHES AND FRAMES (Wire Drawing)
Vaughn Machinery Co., Cuyahoga Falls, O.

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